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ORIGINAL ARTICLES.

DEAF MUTES: CAN THEY BE MADE TO HEAR?*

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I present the history of six cases of deaf mutes on whose ears the massage treatment has been used, and will from the study of these cases endeavor to draw a few conclusions which will serve as an answer to the question propounded in the title.

Recalling for a moment my method of using massage, you will remember it is applied to the drum-head and middle ear through the external meatus, by means of phonographic ear tubes, and is of three kinds, *pneumo*, *phono* and *mixed massage*. By *pneumo* massage the ear structures are put into active motion through the increase or diminution of pressure within the tubes; in *phono* massage the sound is the active agent; *mixed* massage is a combination of the two, and has proved in my hands by far the most efficacious.

CASE I.—Miss E. G. of Philadelphia, ten years old, a patient of Dr. John Hunter, came January 28, 1894, with history that when eighteen months old

she had scarlet fever; that the ears were painful; that the lymphatic glands below the ears enlarged and opened; that from this time on she apparently heard nothing, but felt violent jars only; that she has endeavored to utter sounds which seemed to resemble words. Dr. Burnett had given the opinion that nothing could be accomplished by treatment. By careful testing I arrived at the conclusion that the auditory nerve endings were, at least to some extent, sensitive; that however, it took a powerful sensation to excite them, and a long time for a sound message to be perceived, the tests being made by the phonograph. For a month I used the regular treatment for such cases. On February 28th I commenced the use of *phono* and *mixed* massage, and later *pneumo*-massage was applied twice a week. By May (1894), she could readily hear my watch tick, hear the friction cards easily, and the tuning fork annoyed her by reason of the intensity of sound. Voice-hearing was not good, but she heard a loud voice if words were slowly uttered (sluggishness of perception of auditory nerve). She has now

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increased her vocabulary to several hundred words, and is, with some difficulty, it is true, able to converse with other children, and more readily with her parents. For some time past she has been a pupil of the Pollock Public School of Philadelphia, and, while not able to hear at all well, yet is fairly proficient in her studies. After once manifesting itself, the improvement in hearing has been continuous throughout the entire course of treatment.

CASE II.—Miss S. C. of Vicksburg, Va., thirteen years old, deaf mute, apparently congenital, had her ears treated for five years without any change. When she came to me she was tested by all methods, responding not even to the high tones of the phonograph. She had been taught a few of the simplest words, which she uttered in a screechy nasal tone. March 1, 1894, I commenced the mixed massage treatment, applying it twice a week for some five and a half months. She improved steadily, but in September last was compelled to go home. At that time she could hear the watch in both ears, friction cards readily, as well as the metronome and words distinctly uttered in a moderately loud voice. She is now able to converse with her parents and with others, pronouncing ordinary words fairly clearly, and herself constructs short sentences readily. The character of her voice is materially changed, the tones being much lower and of greater volume.

CASE III.—James McC., three and a half years old, a patient of Dr. C. R. Marshall, of Philadelphia, came July 19, 1894; deaf mute, probably congenital, endeavors to say mamma, but the result is indifferent, none but the parents presuming to understand it. Was treated by the mixed massage method once a week for about four months, when it was necessary to suspend treatment, the result being a slight improvement; both father and mother insisting that the boy was brighter and attentive to loud sounds. In April of this year his father reported that there had been little or no change in his hearing, but he thought the boy occasionally heard loud and high-pitched noises. This case, upon its advent, was tested, responding to no test whatever. Upon his last visit he responded but slightly to high whistling tones (phonographically).

CASE IV.—Ida D., aged three years, deaf mute, according to account of parents, acquired. As an infant she suffered for a period of several months from intestinal inanition. This patient had been an inmate of Miss Garrett's school for deaf children. I examined her September 25, 1894, and found by persistent phonographic testing that she possibly heard saw-mill sounds of high pitch. Upon consultation with Dr. Fussell of Manayunk, the family physician, he informed me of his belief that it was a case of congenital deafness, and indicated his disbelief in the possibility of there being any relief whatever. She was examined by Dr. Randall of Philadelphia, who pronounced the case hopeless. This child has been treated once and twice a week up to the present time. From the beginning the hearing improved steadily, but slowly, until now she hears the creak of the water spigot, a dog's bark, the noise of a door knob in motion; within a week she has been awakened while in bed on the second floor by the bark of a dog confined in the cellar, and has arisen imitating the dog's sounds without the slightest suggestion being given to her. In addition, she has developed the power of imitating sounds. When the sound of an O is distinctly uttered into the ear, she repeats the sound, but if the lip motion of an O be made without sound while she is watching the lips, she will repeat the motion without the sound. When her father, in playing the violin, strikes the A string, she invariably repeats the sound, even when the instrument is not in sight. She also repeats the same sound as it issues from an organ, and also when sung.

CASE V.—Martha B., three and one-half years old, Henderson, Ky., was sent to me by Dr. Cheatham, of Louisville, Ky., who had pronounced it a hopeless case, with the proviso that possibly my methods might prove of value. I examined her October 16, 1894. All tests failed to bring forth any response except possibly extreme high whistling tones on the phonograph. The history indicates that this was probably a case of acquired deafness, she having, when one month old, been very sick for over two weeks with a high fever, spasmodic contractions of the limbs, the symptoms being suspicious of a mild scarlatinous

attack. Dr. Joseph S. Dickinson of Trenton, Ky., who treated the case, was not able to determine the exact nature of this illness. The case was placed at Miss Garretts' school at Bala, and, being treated but about every second week, has, according to the account of her teacher at this institution, given evidence of the perception of some high tones, and perhaps of some spoken sounds. Had this case been able to receive treatment as regularly as one or two before quoted, I feel sure the improvement would have been more marked.

CASE VI.—Moses L., sixteen months old, sent to me by Dr. A. P. Keller, of Philadelphia, was examined by me on March 29, 1895, giving no response to any hearing test. He has never endeavored to speak; the history of the onset of the trouble is indefinite, and I am inclined to believe it is a case of congenital deaf mutism. This case, after his third visit was able to hear the noise made by the motion of a door knob.

In addition to the reparative influences that massage effects on the middle and internal ears, it must not be forgotten that in the class of cases under consideration, the ear nerves have either never been awakened or else have been dormant from disuse for a long period of time, and that the methods which have produced the good results above mentioned have served to stimulate not only the ear structures, but also the nerve endings and their ganglia, and that much of the benefit resulting in these cases comes undoubtedly from the awakening of these nerves and their centres by the normal sound stimulation as practiced in the *pneumo-phono massage* method.

I know that conclusions drawn from a few cases are prone to be faulty and inconclusive, but when results are definite and positive, as in the cases above related, and where the conclusions arrived at are in consonance with theoretic reasoning and borne out by practical experience with similar methods in allied conditions, they must, when not opposed by equally important evidence to the contrary, be considered as true.

The conclusions may be tersely presented as follows:

1. That no negative opinion as to the results of treatment can be considered as justified even when all our ear tests fail to indicate the slightest trace of the power of hearing.

2. That every deaf mute should have his ears thoroughly examined, proper treatment instituted, and that this treatment should consist not only of former methods, but should include pneumo, phono and mixed massage.

3. That as a result of this method of treatment favorable effects have been obtained which have not been realized by any other treatment.

4. That in the present status of our knowledge we know not to what extent the power of hearing may be developed by this method; the lack being occasioned by the need of a greater period of time to allow of the further development of the function.

5. That even though the hearing of deaf mutes be not restored to normal or anywhere near thereto, yet the hearing power, as developed during the comparatively short period that this method has been in use, would prove of great value to the deaf mute not only in the development of his speech functions and in the protection of his person from external injury, but would be of great value to his family and friends in their more ready communication with him.

6. That through the improvement obtained by massage treatment, the teaching of deaf mutes by means of the lip reading method and the utterance of sounds in accordance with it is rendered less difficult, and more deaf mutes can be given the advantages of such education. The fact that they can be made to hear any sound rendering them more ready pupils.

The massage methods I employ and the results and conclusions obtained I have set forth in the series of papers here noted.

1. "Massage methods for the relief of Tinnitus and the Improvement of Hearing." Transactions Pennsylvania State Medical Society, 1894, p. 253.

2. "New Methods Employed for the Relief of Impaired Hearing, especially the use of the Phonograph, Vibrometer, Vibrophone and Metronomic Ear Massour." Proceedings Philadelphia County Medical Society, 1894, p. 295.

3. "Massage versus Removal of the Sound Conducting Apparatus in Non-Suppurative cases of Disease of the Ear." Proceedings Philadelphia County Medical Society, 1894, p. 362.

4. "The Modern Treatment of Deafness." Alumni Report of Philadelphia College of Pharmacy, January, 1895.

5. "What are the Effects of Pneumo and Phono-massage on the Middle and Internal Ear?" Proceedings in Otological Section American Medical Association, 1895.

Accompanying paper No. 2, there is an attempt at a Bibliography of Massage Methods up to May, 1894.

RESPIRATION, SUFFOCATION AND RESUSCITATION.*

THE MAIN PHYSIOLOGICAL FACTORS WHICH PLAY THE RÔLE IN RESPIRATION, SUFFOCATION AND RESUSCITATION, AND THE AUTHOR'S METHOD OF PNEUMATIC ARTIFICIAL RESPIRATION.

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[CONTINUED.]

When we breathe, we draw in the air by our nostrils, which penetrates the trachea, or windpipe, thence passing into the bronchial tubes and tubelets, and thence into the air cells. Here it yields part of its oxygen to the blood, receiving carbonic acid in exchange. It was drawn in by a dilatation of the chest, and is driven out again by a contraction of the chest. Science has accurately measured the amount of air thus inspired and expired—namely, about 20 or 25 cubic inches each time. But we never empty our lungs by an expiration; there is always a much larger quantity of air remaining in the air cells; this quantity varying, of course, with the force of the effort. Herbst found that, while 25 cubic inches was the quantity expelled in ordinary quiet breathing, the quantity would rise to 90 and even 240 cubic inches by energetic efforts. It is therefore calculated that an adult man, with a well developed chest, will retain about 170 cubic inches of air in his lungs, after each respiration, during ordinary breathing; and as 25 inches will be added at the next inspiration, there will be alternately 175 and 200 cubic inches of air acting on the blood which rushes over the vast area of lungs. The phrase

"vast area" is no exaggeration; for small as the bulk of those organs truly is, the amount of surface on which blood is exposed to the air in them has been calculated by Lindenau at not less than 2,642 square feet. Is it not wonderful to reflect that, in the course of a single year, 100,000 cubic feet of air have been drawn in and expelled by something like 9,000,000 of separate and complicated actions of breathing to aerate more than 3,500 tons of blood?

The injurious effect of tight lacing has often been pointed out, and in England and America, at least, women have pretty generally learned to see the danger, if not always the hideousness of those wasp-waists once so highly prized. A single fact elicited in the experiments of Herbst will probably have more weight than pages of eloquent exhortation. It is this: The same man who, when naked, was capable of inspiring 190 cubic inches at a breath, could only inspire 130 when dressed. Now, if we compare the tightness of a woman's stays with tightness of man's dress, we shall easily form a conception of the serious obstacle stays must be to efficient breathing; and the injurious effect of this insufficient breathing consists, as we shall see hereafter, in its inducing a

depression of all the vital functions. In respiration we draw in and give out a *similar quantity* of air, but this air is by no means of *similar quality*. It has been altered—vitiated. The ancients had no other notion of respiration than that it served to cool the blood, as the air cools the heated brow. We know that it serves to supply the indispensable conditions of vital changes, by removing carbonic acid from the blood, and supplying its place with oxygen. The air which is expired differs profoundly from that which was inspired; it has lost much of its oxygen, and has gained from three to six per cent. of carbonic acid, a large amount of vapor, traces of ammonia, hydrogen, and volatile organic substances, with an increase of heat. It was pure, respirable air when it entered, and is now so vitiated that after a few repetitions of the process it becomes irrespirable. The vitiation results from the carbonic acid. The quantity of this gas which is momentarily thrown into the atmosphere by each individual, varies accordingly to sex, age, physical and mental condition, and according to the season of the year and time of day. We are constantly exhaling carbonic acid, but not in constant quantities. Men exhale much more than women; during the ages of from 16 to 40 the quantities exhaled by men are nearly double that exhaled by women of the same ages. In men it is observed that the amount gradually increases from the age of 8 to that of 30, making a sudden start at the age of puberty. From the age of 30 it decreases gradually, till at extreme old age the amount is no greater than it was at 10. In women a noticeable phenomenon is observed; the amount increases from infancy to puberty, just as in men; but at that epoch the increase suddenly ceases, and remains stationary till the change of life, when the amount increases. Besides such variations depending on age and sex, there are others dependent on the muscular activity and physical condition of the individual. The amount of carbonic acid exhaled during digestion is greater than that exhaled during fast, and greater in sunlight than in darkness. Wines, spirits, tea, coffee, and narcotics lessen the amount; not, however, because they interfere with the

process of respiration, but because they cause less carbonic acid to be produced by the organism—they protect the tissues from the destructive action of oxygen.

The carbonic acid thus thrown into the air is the product of disintegrated tissues—the ashes of the vital flame. The blood in the capillaries parts with its oxygen received in the lungs, and, according to the current hypothesis takes up in exchange the carbonic acid produced by the action of the tissues. If we were permitted to designate every interchange of these gases by the name of respiration, we should have to speak of two different kinds of respiration; one taking place in the lungs, where carbonic acid is exchanged for oxygen, the other taking place in the tissues, where oxygen is exchanged for carbonic acid; but a more accurate and philosophical nomenclature, which seeks its terms in a consideration of functions, and not in the results effected by those functions, will not permit such confusion.

The exchange of these gases, considered simply as an exchange, is a physical fact resting on well-known physical laws. There have been, and there still are, disputes as to whether the gases are free in the blood, as in water, or are in a state of slight chemical combination; but the facility with which the exchange is made seems to be as great as if they were free. If blood be shaken in a vessel containing air, it will absorb more than a tenth of its volume of oxygen from that air. It is then saturated; and if now poured into a vessel containing carbonic acid, and there shaken, it will abandon almost all its oxygen, and absorb carbonic acid. This is a simple illustration of the interchange effected in the lungs and in the tissues; for, as previously indicated, the delicate walls of the blood vessels oppose no obstacle in this interchange. It is only necessary that the blood should be brought in contact with an atmosphere, or a fluid, of a composition specifically different from its own; in the lungs, the carbonized venous blood comes in contact with air containing scarcely any carbonic acid. In the tissues oxygenized arterial blood comes in contact with a plasma which contains scarcely any oxygen; and in both cases

the blood yields up its own gas in exchange for another. In the normal process the exchange is always that of *these* gases; but to prove the simple physical nature of the exchange, we have only to substitute hydrogen for oxygen, and the animal confined in a vessel containing this gas will be found to exhale carbonic acid with the same facility as when atmospheric air is breathed. No animal can continue long to breathe hydrogen, simply because that gas does not furnish the conditions of vitality; but while the animal breathes in hydrogen, the exhalation of carbonic acid is as perfect as at any other time; thus showing that the exhalation depends on the difference in the nature of the gases in the atmosphere and in the blood.

When we breathe over and over again the same air, we gradually vitiate it by the constant exhalation of carbonic acid, which gradually brings the air up to the point where the difference between it and the blood—and as regards the proportion of carbonic acid—disappears. The blood ceases to be arterialized, and the vital functions are arrested. In vain does the air still contain a quantity of life-giving oxygen; the blood cannot take it up, because it cannot get rid of the carbonic acid, and it cannot get rid of its carbonic acid because the conditions of the exchange are absent. To make an animal breathe air overcharged with carbonic acid is equivalent to a gradual prevention of his breathing at all. Suffocation results from vitiated air in precisely the same manner as from interception of the air. Although burking and gagging are crimes which appall the public, that public seems almost indifferent to the milder form of the same murder when it is called "want of ventilation." In spite of the historical infamy of the Black Hole at Calcutta, our prisons, hospitals, theaters, churches and other public buildings were left disgracefully neglected, until, thanks to the energetic labors of our sanitary reformers, public attention was aroused. That thousands have been the victims of public ignorance on this important matter, may be shown by a single example. The deaths of new-born infants between the ages of one and fifteen days, which in the Dublin Lying-in Hospital amounted in the course of four years to 2,944 out

of 7,650 births, were suddenly reduced to only 279 deaths during the same period, after a new system of ventilation had been adopted. Thus, more than 2,500 deaths, or one in every three births, must be attributed to the bad ventilation. Since the last fifteen years much change has taken place regarding the system of ventilation in our public institutions and private dwellings. In Europe and America the public is daily becoming more enlightened on the subject of ventilation, although a dangerous indifference, springing from want of elementary knowledge, is still prevalent, and taxes the patience of reformers; but in the country where these lines are written, it is painful to observe that even highly cultivated men seem almost insensible to the importance of fresh air. Many in our over-crowded districts sit for hours in low-crowded rooms, so dense with tobacco smoke that on entering you cannot recognize your friends; and so vitiated is the atmosphere by the compound of breath, bad tobacco, human exhalations, and an iron stove, that at first it seems impossible for you to breathe in it. Even in their private rooms they breathe a hot, musty, dry air, which makes one gasp for an open window. It is true that after a while you get accustomed to the air. You also get accustomed to that of the smoke-filled rooms with people and other conditions. On entering, you felt it would be impossible to stay there ten minutes; but in less than ten minutes it has become quite tolerable, and in half an hour scarcely appreciable. If you quit the room for a few minutes, and return once more after having breathed fresh air, again you perceive the poisonous condition of the atmosphere, but again you will get accustomed to it, and seem to breathe freely in it. Was this atmosphere really not injurious? or have your sensations, like sentinels asleep, ceased to warn you of your danger? To answer this, we will first bring forward some experiments instituted by Claude Bernard, on the influence of vitiated air. A sparrow left in a bell-glass to breathe over and over again the same air, will live in it for upwards of three hours; but at the close of the second hour—when there is consequently still air of sufficient purity to permit this sparrow's

breathing it for more than an hour longer—if a fresh and vigorous sparrow be introduced, it will expire almost immediately. The air which would suffice for the respiration of one sparrow suffocates another. Nay, more; if the sparrow be taken from the glass at the close of the third hour, when, very feeble, it may be restored to activity; and no sooner has it recovered sufficient vigor to fly about again, than, if once more introduced into the atmosphere from which it was taken, it will perish immediately. Another experiment points to a similar result. A sparrow is confined in a bell-glass, and at the end of about an hour and a half it is still alive, although obviously suffering; a second sparrow is introduced; in about ten minutes the new-comer is dead, while the original occupant flies about the lecture-room as soon as liberated.

One cannot try experiments on human beings as on animals, but accident and disease frequently furnish us with experiments made to our hand. What has been related of the birds is confirmed by an accident which befell two young Frenchwomen. They were in a room heated by a coke stove. One of them was suffocated, and fell senseless on the floor. The other, who was in bed, suffering from typhoid fever, resisted the poisonous influence of the atmosphere, so as to be able to scream till assistance came. They were both rescued, but the healthy girl, who had succumbed to the noxious air, was found to have a paralysis of the left arm, which lasted for more than six months. Here, as in the case of the sparrows, we find the paradoxical result to be that the poisonous action of a vitiated air is better resisted by the feeble, sickly organism, than by the vigorous, healthy organism. This paradox admits of physiological explanation. In the vitiated air of a German Kneipe, or other similar places, as in that of the houses of the poor, we find those who have had time to adjust themselves to it, breathing without apparent inconvenience, although each new-comer feels the air to be vitiated; and because they "get accustomed to it," people very naturally suppose that no injurious effect can follow. Here lies the dangerous fallacy. They get accustomed to it indeed, and only because they do so are they

contented to remain in it. But at what price? By what means? By a gradual depression of all the functions of nutrition and secretion. In this depressed condition less oxygen is absorbed, and there is less needed in the atmosphere. A vitiated air will suffice for the respiration of a depressed organism, as it would amply suffice for the respiration of a cold-blooded animal. When we enter a vitiated atmosphere, our breathing becomes laborious; the consequence of this is a depression of all the organic functions, and then the breathing is easy again, because we no longer require and we no longer produce so much carbonic acid. Were it not for this adjustment of this organism to the medium by a gradual depression of the functions, continued existence in a vitiated atmosphere would be impossible; we see the vigorous bird perish instantaneously in air which would sustain the enfeebled for upwards of an hour. Thus does physiology explain the paradox; but at the same time it points out the fallacy of supposing that bad air can be harmless because we "get accustomed" to it. However a fortunate circumstance for those who have to breathe bad air, that the organism is quickly depressed to such a point as to render such air respirable, no one will deny that depressions of this kind are necessarily injurious, especially when frequently experienced. There is indeed a wonderful elasticity in the organism, enabling it to adapt itself to changing conditions; but a frequent depression of functional activity must be injurious, and fatal if prolonged. It is interesting to observe the gradual adjustment of the organism, as contrasted with one less gradual. The longer the time allowed, the easier is the adjustment. These examples are often witnessed in workmen whose task it is to do labor in such places where the air is entirely laden down with poisonous gases, etc. Thus a bird will live three hours in a certain quantity of air; in the same quantity, two birds of the same species, age and size, will not live one hour and a half, as might be supposed, but only one hour and a quarter. Conversely, the bird which will live only one hour in a pint of air will live three hours in two pints. Enlightened by these remarkable results, we shall now

be able to regard respiration as a physiological function rather than as a simple physical process. On more than one occasion we have had to protest against the tendency to explain vital phenomena by physical and chemical laws only, without regard to the order of conceptions specially belonging to vital phenomena; and we must repeat that protest in the present case. That respiration is ultimately dependent on physical laws, no one thinks of disputing; and in the arduous endeavor to detect the operation of those laws, it is natural that men should neglect the still more difficult studies of vital laws. But we think it can be shown that however far analysis may trace the operation of the laws of gaseous interchange and diffusion, and the condensing action of moist membranes, those will only conduct us to the threshold; they will never open for us the temple. These physical laws reveal only one part of the mystery. Respiration is not a simple physical fact. It is the function of a living organism, and as such receives a specific character from that organism. No sooner do we cease to regard the exclusively physical aspect of this function—no sooner do we fix our attention on the organism and its influence, than the whole theory we have raised on the laws of gaseous interchange suddenly totters and falls.

It seems easy to explain why warm-blooded animals cease to breathe in an atmosphere charged with a certain percentage of carbonic acid, although there may still remain sufficient oxygen to permit a candle to burn in it, and even to permit continued respiration if the carbonic acid be removed. The presence of a certain amount of carbonic acid in the air prevents the exhalation of that gas from the blood. As we read the explanation, nothing can seem clearer, and we admire the skill with which the laws of the absorption of gases are brought to bear on the fact. But as we pursue our researches, various difficulties arise, and as we extend the inquiry from the respiration of warm-blooded to that of cold-blooded animals, we learn that the fact so luminously explained is not at all true of the simpler organisms. Let us for a moment consider one striking contradiction in the theory; the air which has once passed through the

lungs of a man, and which, in losing four or five per cent. of its oxygen has become charged with three or four per cent. of carbonic acid, will yield but very little of its remaining oxygen when again passed through the lungs; and if this air be breathed over and over again, until the sense of suffocation forces a cessation, the air will still be found to contain 10 per cent. of oxygen—that is to say, nearly half of its original quantity. In air thus vitiated the respiratory process is impossible, but only impossible for warm-blooded animals in health. Frogs, reptiles, fish and mollusks, instead of perishing when the air has lost about half its oxygen, continue to breathe and to absorb oxygen, almost as long as there is any left. Spallanzani, Humboldt and Matteucci, have placed this beyond a doubt by their experiments; and when we consider how long these experiments have been before the world, it is a matter of surprise that the contradiction they give to all the purely physical theories of respiration has not been insisted on. If process depends simply on the proportion of gases in the atmosphere, how is it that one animal can continue to breathe in an atmosphere irrespirable by another? If it be simply the interchange of oxygen and carbonic acid, and this interchange be frustrated whenever 11 per cent. of oxygen has disappeared, the law must be absolute, and as applicable to reptiles and mollusks as to birds or mammals. Instead of this we find that reptiles can continue to breathe long after such a limit has been passed; they continue to absorb oxygen as long as even only three per cent. remains, in spite of the continually increasing proportion of carbonic acid. How is it that the physical laws of absorption frustrated the respiration of one class of animals, and were powerless with another class? Why is it that when a bird and a frog are confined in the same vessel, the frog will continue to absorb oxygen from the vitiated air in which the bird has long since perished? Clearly, the cause of this difference lies in the difference of the organism, and we must no longer seek in the mere quantities of gases an explanation of interrupted respiration; we must no longer say that "breathing becomes impossible when the air is charged with a

certain amount of carbonic acid because that amount prevents the gaseous interchange;" but we must say that such an amount prevents the gaseous interchange, because it interferes with the organic action of the pulmonary apparatus. The distinction becomes palpable when we have an organism which is not affected by this amount of carbonic acid, and is even more palpable when we see a warm-blooded animal capable of breathing for a long period the air which under a different condition, it would find irrespirable. We have seen how a bird, with its functions depressed, can continue to breathe for an hour in an atmosphere which immediately suffocated another bird of the same species; whereby it became clear that the lungs of one warm-blooded animal could absorb oxygen from an atmosphere in which there was such a proportion of carbonic acid; that sufficient oxygen could not be absorbed by a vigorous animal of the same species.

The intervention of organic conditions, modifying the simple physical laws of gaseous exchange, is sufficiently evident from what has just been said; but we have as yet no clear insight into the nature of this intervention; we do not know why blood, charged with carbonic acid, cannot in the one case exchange that gas for oxygen, of which 10 per cent. still remains, since in another case the same blood can effect the exchange when there is even less than 10 per cent. of oxygen. Atmospheric air contains only 21 per cent. of oxygen. But if 50 per cent. of oxygen be mixed with 50 of carbonic acid, a warm-blooded animal is suffocated in it, in spite of there being more than double the amount of oxygen there is in the ordinary atmosphere. Bernard, who made the experiment, thinks that the carbonic acid in this mixture prevented this oxygen from entering the blood, not only because of its greater solubility, which gives it a tendency to displace the oxygen, but also because of the obstacle it presents to the exhalation of carbonic acid. On the other hand, the extensive and careful experiments of Regnault and Reiset show that respiration will take place quite well in an atmosphere

which contains as much as 23 per cent. of carbonic acid, if at the same time it contains as much as 40 per cent. of oxygen. How are we, on physical principles, to reconcile such facts as those just cited? In the one case we see that 50 per cent. of oxygen is insufficient if the amount of carbonic acid be also 50 per cent.; in another case we see that 40 per cent. of oxygen suffices if the carbonic acid does not exceed 23 per cent.; and we could explain both by saying, that unless the amount of oxygen nearly doubles that of carbonic acid, respiration is impossible, were it not for the irritable objection that reptiles breathe in an atmosphere which has become charged with carbonic acid, and has gradually lost all but 3 per cent. of its oxygen.

We have raised difficulties which we cannot pretend to remove. It is enough to have called attention to the physiological problem involved as a justification of our skepticism in presence of the physical explanations. Respiration is not a simple interchange of gases, but an organic function, which chiefly consists in exhaling carbonic acid and absorbing oxygen; whatever interferes with the exhalation or the absorption, checks respiration, no matter what may be the condition of the atmosphere. As a final proof of the correctness of this conception we will add that oxide of carbon, by preventing the exhalation of carbonic acid from the blood, prevents all respiration whatever amount of oxygen may be in the air. Moreover, experimenters are now agreed that there is no accurate correspondence between the amounts of oxygen absorbed and carbonic acid exhaled, as there ought to be were the process one of simple exchange. Spallanzani placed four couples of snails in four separate vessels containing atmospheric air; he found that two of these couples absorbed 20, one 19½, and the fourth only 17 of oxygen, but the amount of carbonic acid exhaled was strikingly at variance. In two vessels he found 20 and 17 of oxygen replaced by 3 of carbonic acid; in two others, 20 and 19½ by 4 and 8 of carbonic acid; clearly showing that the exhalation had been one process and the absorption another.

A RARE CASE OF HYDROCELE.

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Mr. W. H., about ten years ago, consulted me for an enlargement of the right side of the scrotum. A hasty diagnosis of hydrocele was confirmed by the introduction of the needle of a hypodermic syringe, and the withdrawal of serum. After the use of the trocar the enlargement was reduced to about one-third of its former size. I regarded the remaining hardness as a chronic enlargement of the testicle, and estimated it to be about four times its normal size. Frequent tapplings becoming necessary, he soon learned to perform the operation himself, and the case passed from my care, and almost from my recollection.

Last Spring I was called to see him and found him in bed, with fever and chills. The scrotal tumor was about three times as large as the fist of an adult and excessively tender to the touch. The tenderness and swelling had come on immediately after using the trocar some ten days before.

I applied hot fomentations, and later iodine, to the scrotum, and gave quinia, etc., internally.

The hypodermic needle showed the presence of serum, but apparently no pus. Being a member of the House of Representatives, I left the case in charge of Dr. J. A. C. Clarkson, a skillful surgeon of this place. On my return home the following Saturday, pus had accumulated in the hydrocele sac, which we evacuated, and inserting a drainage tube at the bottom of the scrotum, brought it out again at a point nearer the top. Through this bichloride solutions were daily injected, and his general health most carefully looked after, for he was seventy-three years old, and feeble. Later the drainage tube was withdrawn, a seton took its place, and the antiseptic injections continued. His general health improved, but the discharge of pus, which was sometimes fetid, seemed not to lessen in quantity, although this plan of treatment was continued two or three weeks. Dr. Clarkson agreed with me that the enlargement remaining after

evacuating the sac, was an enlarged testicle. Where was the abscess? In the hydrocele sac or in the body of the diseased testicle? Plainly we had to go through much tissue to reach the cavity.

Under an anesthetic we boldly laid open the whole tumor, from one opening to the other where the seton had been. The knife passed through a substance three-fourths of an inch thick, and nearly as tough as cartilage. The finger introduced into the cavity surprised us, and the patient also, for firmly imbedded in the tissue surrounding it was the testicle, atrophied to about one-third its normal size. What we had supposed was an enlarged testicle was simply one of those very rare cases of hydrocele with a sac which had become fibrous, and in places cartilaginous. The cavity, which was senseless to the touch, was vivified by the use of caustics until healthy granulations appeared, when it was treated simply antiseptically, until it disappeared about four weeks later. Atrophy of the whole mass rapidly followed the use of the knife, and in six weeks the contents of both sides of the scrotum were about equal in size.

Query: Why did atrophy so rapidly follow the use of the knife, and why did it not follow the use of the seton?

Hæmostasis in Vaginal Hysterectomy.

Delore (*Lyon Méd.*, June 30, 1895), adopts the following method of detaching the cervix, whereby the chances of hemorrhage are reduced to a minimum. He avoids the complete circular cut into the mucous membrane. A semi-circular incision is made anteriorly and posteriorly. The ends of opposite incisions are not made to meet, so that the mucosa reflected on to the cervix in lateral fornices is not wounded. The bladder is then detached, and Douglas's pouch laid open; then the broad ligament is seized on each side between the blades of a long-handled forceps, which also grasps the mucous membrane. The uterus can be detached.

COMMUNICATIONS.

A CLINICAL STUDY OF TRIONAL.†

DR. GALLIARD, PARIS.*

Trional, which was discovered in 1890 by Baumann and Kast, and introduced shortly after into medical practice by Barth and Rumpel, now occupies a prominent place among the group of hypnotics. Although much employed in Germany this remedy has not been utilized to any extent in France. At the request of Dr. Worms, a member of the Paris Academy of Medicine, the author has made a number of experiments with regard to the action of trional. As it is his intention to make this disulphone, which is closely related to sulfonal, the subject of a special study, he has refrained from mentioning here the results obtained by other authors, as well as a number of reports not yet published, for which he is indebted to the kindness of Drs. Worms, Duguet and Perrier. He has himself employed trional in forty cases of sleeplessness. In all of these, with but one exception, the drug was administered *per os*, and always in single doses of 1.0 gm. (15 grains).

A review of these cases shows that only seven patients proved refractory to the effects of trional. In cases in which the author observed that the first dose failed to produce the desired sleep, he made a trial of larger doses; in thirty-three cases, the effect persisted at least a few hours, or even the entire night, so that it might be characterized as partial or complete.

	No. of Cases.	Successes.	Failures.
Acute Diseases.	5	5	0
Chronic Bronchitis.	7	6	1
Phthisis Pulmonalis.	15	10	5
Cardiac Diseases.	6	5	1
Chronic Nephritis.	1	1	0
Chronic Alcoholism.	2	2	0
Morphinomania.	1	1	0
Insomnia, the simple as well as the neurasthenic	3	3	0
Total	40	33	7

Trional has neither antipyretic nor analgesic properties, nor is it capable of alleviating cough or acting upon night-sweats. It is to be regarded as a hypnotic pure and simple. In ordinary insomnia, and in that of neurasthenics, it would seem to be especially indicated, as appears from the above table. As the author has had no occasion to administer in psychical disorders or alcoholic delirium, he is unable to add his testimony to the observations of foreign investigators who have praised it for this purpose. In the majority of cases in which he prescribed trional it proved of service, producing sleep without exerting any influence upon the effects of other medicaments which were administered simultaneously, and without occasioning any serious complications.

As regards after-effects, a feeling of emptiness in the head, vertigo and nausea sometimes occurred on awakening. In other respects the sleep is quiet and awaking agreeable.

No influence upon the circulation was observed, even in cardiac cases. The respiration was not affected, and the hemoptysis which occurred in a phthisical case the night after taking trional, was simply an accidental condition which had been previously observed in the same case. No injurious influence upon the gastro-intestinal tract was noticed. A woman who was admitted to the hospital in the third month of pregnancy for continuous vomiting, received trional during four successive nights, which secured a quiet sleep without suspending the effect of the anti-emetics administered; she soon left the hospital cured.

With regard to the urine, nothing abnormal was noted. Occasionally slight traces of a red coloring matter were found in the urine which might suggest the presence of hematoporphyrin, but this has not been thoroughly studied by the author. He suspects, however,

† Author's abstract of paper read before the Academy of Medicine, Paris.

* Physician to the Tenon Hospital.

that hematorporphyrinuria occurs only in those persons who have been subjected for an extremely long time to the action of trional. None of his patients employed more than six doses of 1.0 gm. (15 grains) successively. A patient of his colleague, Dr. Worms, who for five weeks took 1.0 to 1.5 gm. daily, voided urine which, on analysis by Boymond, presented the following features: Color reddish-yellow, Type No. 5 to 4, according to Neubauer and Vogel; acid reaction; specific gravity 1003. In the sediment were found numerous leucocytes, but otherwise no abnormal constituents; the only abnormal element was a substance which had reduction capacity and a deviation of 0.4 to 0.5. M. Boymond believes that this reducing substance is a metamorphic product of trional. According to Morro, however, trional is completely decomposed in the organism, and therefore cannot appear in the urine in the same manner as in the case of sulfonal, and according to Schaumann, trional has no influence upon the metabolism, and, unlike chloral, does not destroy albuminous substances.

In conclusion, trional in doses of 1.0 gm. is innocuous and serviceable in insomnia due to various causes. As it is but slightly soluble in warm water, it is best given in wafers, and its administration followed by a cupful of warm fluid in order to accelerate its hypnotic effect. In ordering an enema of trional, which was employed successfully in one of his cases, it is advisable to make use of an apparatus which permits one to completely inject the trional suspended in the fluid. It is his intention to make a trial of the drug in the form of suppositories.

As regards the question of whether trional is to be preferred to sulfonal, the author states that the hypnotic effect of the latter is often slow, while trional has the advantage, in the majority of cases, of producing sleep at the end of twenty to twenty-five minutes and sometimes even in a shorter time.

In a discussion of this paper, Dr. Marie shared the view of Dr. Galliard in reference to the comparison between sulfonal and trional. He has employed the latter remedy and always preferred it to sulfonal.

Galvanism as a Depilatory.

LeHardy reports the following interesting case (*Virginia Medical Monthly*, August, 1895):—

A handsome and healthy brunette of twenty-four years, from North Carolina, had upon her face a very thick and silky beard, "moustache," and "imperiale," that would have been the pride of any man, but intolerable to a woman, and she determined to get rid of it at any sacrifice. I started the treatment with the orthodox iridio-platinum needle, passing a weak current after each insertion, but the pain was so acute, and the progress so slow, that I resorted to depilation by introducing caustic potash with a needle. I soon discovered, however, that one application was not sufficient to destroy the bulb; two, or even three, were often needed. The severity of the pain, and the formation of deep ulcers, demonstrated this method to be worthless. I next procured fine cambric needles (No. 12); these I inserted along the shaft and well into the bulb of each hair; on one side of the face twenty-five to fifty needles were introduced at each sitting, taking care to separate the needles well, to prevent inflammation.

The insertion of these needles, if carefully done, gives no pain whatever. A soft Turkish sponge, moistened with salt water, was then placed in contact with the needles and the surrounding skin. Upon this I pressed the negative electrode, while the positive was held by the patient. I then turned on a weak current from the battery, and increased it gradually until it was sensibly felt.

At the expiration of from five to eight minutes, the current was closed, the sponge removed, and the needle withdrawn. Where the needles had been inserted, there was a small white spot, the bulb was destroyed, and hair could be removed easily. This process was repeated every few days until the last bulb was destroyed and the last hair removed. No unsightly marks were left except the few cicatrices produced by caustic potash, and the lady was fully rewarded for her fortitude, patience and determination. This experiment proved to be eminently successful. Having repeated this treatment in a number of cases since and obtained good results, I can recommend it to the profession.

NASAL AND POST-NASAL CATARRH; TREATMENT AND PREVENTION OF IN YOUNG CHILDREN.

J. BERMANN, M.D., WASHINGTON, D. C.

I am tempted to commence with words which I heard Prof. von Rhin-ecker, in Würzburg, utter in his Clinic: "The disease with which we are to become acquainted here, is one of the most important for the student to know; he must be prepared to meet it at every step in his future career, as almost everybody has it; I have had it, so have my family, and you all will get it, if you are as yet free from it." This quotation will hold good in a much wider sense with my subject. I think I am justified in saying that in this country everybody is more or less afflicted with catarrh of the upper respiratory tract, and I propose to give a resumé of my views on this disease, the conclusions I have reached after fifteen years practical experience; and, what is of more importance, how a great deal of it can be prevented. Limited time prevents an exhaustive quotation of the literature, and I do not mention every author who holds the same views, or is opposed to them. I do not propose to include those forms of catarrh due to such causes as syphilis, tuberculosis, and mechanical irritants.

Catarrh is caused by catching cold, as the popular saying goes. It means that the person affected has more or less profuse discharge from the nose (I speak of the earliest stages) and has fits of sneezing. The nose is usually congested to such an extent that mouth breathing becomes a necessity; there is a considerable dropping of phlegm from the posterior nares into the pharynx or larynx, and with smaller children it is frequently accompanied by more or less fever. It runs its course usually within a fortnight and an almost perfect restitution *ad integrum* takes place. I say *almost*, because it always leaves a disposition to a repetition of the attacks, and very frequently a slight congestion or thickening of the nasal mucous membranes. With small children a quite distressing cough accompanies it often and then the

family physician is usually called in. He will usually prescribe one of the customary cough mixtures, and as the cold will get well in time of its own accord, if the patient is not injudiciously exposed, he will naturally receive more or less credit for his satisfactory treatment.

In the majority of cases, especially with the poorer classes, the parents would not even dream of calling in a physician for such a little thing as a cold in the head, and the foundation is laid for all the unpleasant sequelæ due to catarrhal congestion of the nasal and post-nasal mucous membranes, such as are brought to the specialist in later years when the advanced stage of the disease necessitates energetic special treatment. One of the most frequent impediments to breathing which the specialist has then to deal with, is the deflection of the septum, the origin of which, according to all the existing hand-books, seems to be hidden in impenetrable mystery. Even in the last and most excellent hand-book on this subject, "The Diseases of the Upper Air Passages," by Prof. Moritz Schmidt, of Frankfort-on-the-Main, the author seems inclined to consider them caused principally by mechanical injuries, acquired during early infancy. I must confess that I do not think it likely that even a number of slight falls on the nose will produce such a lasting deformity as a deflection of the septum, especially when we consider the elasticity of the organ in small children and its slight prominence. I have given a good deal of thought to the subject for the last few years, and think I have found a more logical explanation for the excessive frequency of its occurrence. As I said, a cold in the head in very small infants is a very frequent thing, and here we have in my opinion to look for the origin of the deflected septum. We know that a catarrhal congestion of the membrane means an

increased supply of blood to the portion affected, and, in course of time, a thickening not only of the submucosa but also of the mucosa and its epithelium, to such an extent that in transverse sections of such membranes we often find the epithelial layer ten times its original thickness. The submucosa forms also part of the perichondrium and periosteum, and we can take it for granted that the same cause which will produce such a hyperplasia of the outer layers, is sure to produce the same effect on the tissues forming the septum, *id est* the cartilage and the bone. Without entering into histological details, I simply state that an increased growth of the vomer, both of its cartilage and bone, must take place principally at its upper and lower portion; that is to say, the septum narium will grow faster than it would under normal conditions. As it is imbedded in a fixed position both above and below, it will have to give way and bend out to one side or the other in order to make room for the increase in its height, and then we have a deflection which may be a very slight one in the beginning, but when it once exists it will increase in size with the increased size of the organ, especially if the tendency to catarrh of the nose is not checked in early infancy, when it can be done with comparative facility.

I have always followed the advice given by Henoch, to treat the nose of an infant, even if it should be only a few days old, if it has a cold in the head and does not breathe perfectly, with a two per cent. solution of nitrate of silver applied with a brush. There are, no doubt, other agents which will also give satisfaction, but the nitrate of silver solution has always proved absolutely inoffensive, even with the youngest babies. Care must be taken, of course, not to have the brush overloaded with the fluid, so that it can drop into the larynx. The child's head is held firmly between the knees of the operator, while the body, hands and feet are held by the nurse, who is sitting in front of him. The baby will, of course, kick vigorously against such interference with its nasal organ, but you will have the satisfaction (treat every slight cold in an infant in this manner,) to know that you have done a great deal towards preventing

the child from getting a deflected septum, or affections of the ear which are in almost all cases due to neglected nasal and post-nasal catarrh. I would even go further and say to you, call the mother's or nurse's attention to the fact that the only natural way for a baby to breathe is through its nose with closed lips, *and the breathing should be almost inaudible*. If the baby makes any noise in breathing through its nose apply the next day the nitrate of silver solution in the manner described, or show the mother or nurse how to do it properly. With this simple remedy you will do your patient more good than if you wait until the catarrh is fully developed so that you will have to send the patient to the specialist. I am decidedly of the opinion that in otherwise healthy children the hyperplasia of the adenoid tissue in the post-nasal space can be avoided by such interference with an acute rhinitis. The development of this hyperplastic tissue can only be explained by an irritated condition of the post-nasal membranes. This irritated condition always exists when the infant or child is forced to breathe through its mouth and cannot get rid of the accumulated phlegm in its nose and nasopharynx. The consequence is that the secretion on the pharyngeal membrane is dried up by the inspiratory and expiratory air passing over it. The irritation set up by this layer of dried mucous spreads in all directions and it can easily be imagined how such a condition of affairs will produce hyperplastic adenoid tissue as well as hypertrophy of the nasal membranes. You have only to stand by and watch a child sleeping with obstructed nose and observe how often the poor little thing *tries* to shut its mouth and breathe *naturally*, hear the unnatural noises it makes, and you will soon be convinced that to neglect such a cold in an infant can throw upon you the responsibility of having the child to become a victim of chronic nasal catarrh, post-nasal catarrh, adenoid vegetations, hypertrophy of the pharyngeal tonsil, or middle ear catarrh with subsequent deafness.

This brings me to another point. Galvano-cautery is with most specialists the remedy par excellence for chronic nasal catarrh. They destroy with the

cautery knife or point more or less of the hypertrophic membrane, in order to produce a cicatricial contraction, and will for a while enable the patient to breathe freer through his nose. It has been observed by me, as well as by others, especially Victor Lange, of Copenhagen, that after a year or two, the patient is in a much worse condition than he was before. The hypertrophy has disappeared, it is true, in the cases treated by cautery, but instead of the hypertrophic catarrh the unfortunate is now afflicted with an incurable atrophic catarrh, and if we can manage to keep his nose clear from those crusts of mucous and dust which accumulate in such noses, we have done everything in our power. For such hypertrophies where others use the galvano-cautery, chromic acid, glacial acetic acid, or other caustic, I use the tri-chloroacetic acid only, and have done so for a number of years. I believe I was the first to apply this acid to the membranes of the nose in catarrh. I do not wish to set up any claim of priority, but I may safely say that I have used it longer than any of those who have written papers on the subject. The reason, perhaps, why I did not publish my mode of application was that my method of applying the acid would very likely, in the hands of many, prove either ineffective or even dangerous to the patient. The instrument I use is a glass tube drawn out very fine and bent at a proper angle. To the large end I fasten a rubber tube with a mouth-piece, to enable me to force the acid out by blowing into it. It is unnecessary to use any dilution of the acid for purposes of cautery. A certain amount of the crystals in the bottle will always melt in ordinary temperature, and this I draw up by suction into my glass tube, where it remains by capillary attraction. The tube will only hold a small fraction of a drop, so that I need not fear to apply it in excess, even if I force it all out. After the nose has been thoroughly cocaineized by cotton plugs moistened with a four per cent. solution, the acid is applied to the hypertrophic places only. The advantage of this method is that you can, provided your hand is steady enough, count upon its reaching the place you aim for in any part of the nose you can

illuminate, and no other. It does not form a slough, and if you use the precaution of cocaineizing the nose afterwards, the patient experiences little or no inconvenience. These applications should be repeated at intervals of from one to two weeks, in the beginning very carefully, as the reaction varies considerably in different people. I have seen hypertrophies fully a quarter of an inch thick absolutely melt away after three or four such applications with the perfectly normal mucous membrane showing in its place.

Not only in hypertrophic catarrh would I advocate the use of this acid, but also in those forms where there is more tendency to atrophy, that is, where the membrane proves to be abnormally thin so that even a very slight spray will make it bleed. In those cases I apply only very minute quantities of the acid, usually only on the lower concha, and I have seen in the course of one year such an abnormally thin membrane change its character completely and present a perfectly normal appearance. Even in cases of ozæna of several years standing have I been able after sufficiently long treatment to effect a complete cure of this loathsome disease. It has been recommended lately by St. v. Stein, in Moscow, to use a strongly diluted solution of the acid in organic cases, and I have followed the suggestion and given it a trial in some appropriate cases. The result was not as encouraging as I was led to believe, and as the application is much more painful and has to be repeated daily two or three times, I have returned to the use of the undiluted acid at longer intervals after a thorough cleansing of the nose.

Not only in hypertrophic and atrophic catarrh has the trichloroacetic acid been of such service to me, but also in polypoid degeneration of the nasal membrane have I been able to achieve such results as cannot be claimed by any other method of treatment. We know that a polypus after extraction with a snare or forceps almost without exception returns within a comparatively short time, and even the most thorough cauterization of the pedicle will quite frequently not prevent its recurrence. Of course, if a polypus obstructs the

nose so as to prevent free breathing and shows a pedicle, I always take it out first with the snare. But this I do principally to give the patient some immediate relief and to enable me to apply the acid to the origin of the trouble—the diseased ethmoid bone. I fully concur with Woakes on this point, who first called attention to the fact that in all polypoid degeneration of the nasal membrane co-exists an inflamed condition of the underlying bone, the so-called ethmoiditis. I have not yet seen the case of a nasal polypus where a careful search would not reveal to me denuded bone, and to this I apply the acid in, comparatively speaking, heroic doses. For this purpose I do not know of any instrument that could take the place of my little glass tubes. You may tell me that a fine platina needle would even do better than one of glass, and I once thought so too. Experience has shown me that this is erroneous, as the capillary attraction of the fine tube will always draw a little mucus into the tube where it forms an insoluble block, and nothing short of making it red hot and burning it out will remove it. If there were any way of preventing this, I am willing to concede that a fine platina needle would be sometimes preferable, as the danger of breaking the tube is avoided; but the very fragility of the glass tube, on the other hand, is a point in its favor, as I am enabled, in case it gets obstructed, to break the obstructed part off and go on with my application. As the glass tube serves also as a kind of probe with which to detect the denuded bone, I am thus enabled to judge of the condition of the bone every time I apply the acid. Where I find it undesirable to remove the polypus, especially when it has a broad base, I force my glass needle gently into the growth while forcing air into the tube, in order to prevent the tube from getting obstructed until I reach the bone, or its immediate neighborhood, and deposit the contents in that place. A very considerable shrinkage of the polypus takes place in a comparatively short time, after sufficient time has elapsed to allow a free inspection of the affected part, the application is repeated in intervals of one to two weeks or more, until the membrane and bone have resumed their

normal condition. This will frequently take quite a long time, but any intelligent patient, especially after he has been through the mill of polypus extraction by snare and forceps, will prefer this method infinitely, as it is with the help of cocaine absolutely painless and entails no loss of blood whatever. As you are entitled to promise the patient a much better result by this method of treatment, you will find it worth your while to try it, provided you feel sure enough of your hand and eye to manipulate such a very delicate and fragile instrument as this little glass tube. Unless you do feel perfectly sure of yourself I would not advise you to attempt it, as the results might be disastrous.

Another kind of obstruction, about the origin of which I gave my views a little while ago, is the deflection of the septum, whose removal is, in my opinion, the cause of so much unnecessary bloodshed. I have seen people brought nearly to the brink of the grave from loss of blood caused by such operations on the nose in the hands of inexperienced and rash young specialists. It seems to me that a perfect mania for cutting and drilling and sawing has set in, and I for one wish to put myself on record that all this heavy surgical work is in a great many cases absolutely unnecessary. The nose is rather too delicate an organ to be submitted to such rough usage if there is any other means at hand to obtain the desired result. This we have in the application of electrolysis to the deflections, ridges, and spurs of the septum, whether they are bony or cartilaginous. I have not yet seen the case presenting such obstructions that I could not remove by electrolysis, and although the current is not entirely painless, cocaine will help to make it nearly so, and I have frequently applied it even to children of five or six years. I should recommend this method all the more in cases of small children, as they will submit to this treatment much more gracefully than to any other, even if it has to be repeated a number of times. In most cases, the obstructions in a child's nose will absolutely melt away after three or four applications, while, generally, considerable relief is experienced after the

first time. Among a number of cases on which I operated in this manner, I recall one which presented a complete obstruction of the left nostril, so that the patient was absolutely unable to draw air through it or expel it at any time. This I attacked with my electrolytic needles, and had the satisfaction, after about six months treatment in bi-weekly intervals, not only to get a clear breathing space, but also sufficient room to inspect the nose as far as the post-nasal cavity. There was never a drop of blood lost, the patient never had at any time any inconvenience from it, and I suppose you will agree with me that even if the operation takes longer time, it is much safer and fully as sure as any other. I almost without exception use the bi-polar needles and a current of from ten to fifteen milliamperes with grown people—with children less—for

about ten minutes, or as long as the patient will hold still and does not have to sneeze. As the handles supplied by the instrument-makers are too clumsy and heavy, I have had a handle constructed for the purpose, and can recommend it as a very useful and inexpensive little instrument. It is immaterial what battery is used, but one must be sure to have one that works perfectly, so that the current never gets interrupted, and which is provided with the milliamperemeter and rheostat.

I have wished only to give a resume of my views on this subject, and I conclude with an appeal to the general practitioner never to neglect a slight cold in an infant, but to use the nitrate of silver applications described above, and he will find that there will be fewer cases of chronic catarrh—and less use for specialists.

CORRESPONDENCE.

PRACTICAL "ETHICS" AS SEEN BY A CHEMIST.

EDITOR MEDICAL AND SURGICAL REPORTER:—

SIR:—We enclose you clipping taken from the *Western Druggist*. We hope you will give it a prominent place in your journal, as it is a matter of great importance to the profession.

Yours respectfully,

C. A. BATTLE, V. P.

St. Louis, Sept. 27, 1895.

[ENCLOSURES]

A TEST IN PHARMACAL "ETHICS."

"Mr. E. A. Schubert, of Fostoria, Ohio, in the course of a paper on pharmacal ethics, relates this account of a practical test of the professional integrity and competency of retail druggists in a given section of his State—a section, by the way, probably the equal in professional intelligence and honesty of the average community in Ohio and other States. "I espoused the thought," remarks Mr. Schubert, "that it would be a capital idea to write a prescription of easy composition and analysis, to see how many druggists would fill it correctly. I set

to work immediately mailing to each of fifty physicians one of the prescriptions, at the same time asking him to write it as a prescription of his own, send some friend with it to his druggist to have it filled, a copy taken and returned to me with the compounded prescription. Out of the fifty requests sent out, I received thirty-seven answers. The prescription called for a three-ounce preparation, but placing them side by side I found twenty-one to be three-ounce preparations, seven were in size four ounces, while the rest ranged in size from five to eight ounces. It was to be an emulsion; nineteen were of that composition, the remainder were far from being true to name. In color, when correctly filled, it would be nearly white; of these twenty-two were true in color, while the remainder ranged from a steel gray to nearly all the known hues. The principal active ingredient was the acetate of morphine; thirteen only contained this, the remainder principally contained the sulphate. Out of the entire number returned, eleven were found to be

filled correctly. The remainder were base substitutions, either through ignorance or intention. Of the eleven that were correct, nine came from the hands of Ph. G's, the remaining two were compounded by old and reliable druggists in the city. Of the twenty-six not properly filled, we found five Ph. G's., the remainder were country druggists having very little experience in this line, and located, with but few exceptions, in towns of 6,000 inhabitants and less."

Can it be possible that this sort of recklessness and ignorance characterizes the profession in other intelligent communities?"—(*Western Druggist*, August, 1895.)

"Americal medical, pharmaceutical and trade journals, usually keen to detect a hidden advertisement in communications recommending new drugs and preparations when the same emanate from home sources, throw caution and ordinary business sense to the winds when it comes to recommending and puffing the very same class of merchandise, bearing a foreign name and recommended by foreign authority. The success of one or two German chemicals, the products of synthesis, opened the doors for a flood of antiseptins, antifebrins, antipyrins, and other "antis" ending in "ol" or "in". They come to us covered all over with patents—patents covering the name, the process of manufacture, the ingredients (save those which are kept absolutely secret), the modes of dispensing, the package, the label—in short everything that a patent can be made to cover. In a word, they are patent medicines in the very widest and strictest sense of the word; and yet they are received with enthusiastic welcome by press and practitioner, and are given, gratis and gladly, advertisements that money could not purchase for a home product, even though ten times more valuable, and not one-tenth so much patented.

"One of the proprietors of a drug of this sort, recently established in America, on being approached by the solicitor of advertising for an American medical journal, answered very curtly that, "They didn't have to advertise their article. They got all the advertising they wanted for nothing, in the shape of laudatory communi-

cations in the reading matter of the medical journals"; which was true, every word of it, and that in spite of the fact that it was a patent medicine. The very journal for which the agent was soliciting, and in the very copy which he carried as a specimen, contained no less than six laudatory notices of the drug in question—one of them a communication covering several pages and heralding its virtues in almost every known form of disease.

"Per contra, the same journal had enjoyed for years a handsome revenue from the advertisement of a reputable proprietary medicine house of this city, but had persistently refused to admit within its reading matter a little notice commendatory of one of its specialties, the formula of which was printed on every bottle.

"It is useless to plead that these imported patents are so valuable that the profession must have them and must use them, secret nostrums though they be. This is not true, nor is it true that the manufacturers over there are any more honest and frank as to the nature and origin of their wares than are American manufacturers of similar drugs. In proof of this assertion we call the attention of our readers to Gawalowski's merciless exposure of a new compound which is getting ready in Germany to make a descent on Europe and America in the style of its predecessors—the antiseptic kreolin, of the wondrous value of which the advance guard of certificates have already commenced to appear in our journals. Will the latter be warned in time, or will they swindle themselves out of thousands of dollars by giving it the usual American welcome and gratis advertising."—(*National Druggist*, May, 1888.)

"The present so-called ethical views held by our medical men really constitute a barrier to our scientific progress. They continue to act against our American chemists, and in the meantime prescribe freely the German patented articles. Many of our prominent physicians are prescribing freely German patented articles, why should they object to prescribing a really meritorious article if discovered and patented by an American chemist?"—(*Pharmaceutical Era*, March, 1889.)

"Prior to 1888 none of the above mentioned parties advertised in medical journals."

"The difference between a *patented* and a *trade-marked* proprietary article is akin to the gulf between black and white. Yet there are people—competent to understand—who will not admit the difference, and some of these use their opportunities to condemn both kinds indiscriminately in speech and in print.

"Patented products—including exclusively the definite chemical products of recent introduction—are proprietary only for a limited term of years, and on expiration of the patent-right, become the free property of the world. Examples: Salicylic acid, chloral hydrate, etc. now free; antipyrine, sulphonal, chloralamid, piperazine, etc., which will be free in from five to ten years.

"These products are of known chemical constitution; any chemist can make them, and their purity and constant characteristics can be estimated by tests—which are partially official in European pharmacopeias. There is no secret about these products, and even the proprietary names applied to them become free simultaneously with the expiration of patent rights.

"Trade-marked goods are perpetually proprietary; as long as property is secure under "common law" principles, the owner of a trade-marked product (such as sapolio, listerine, etc.), his assigns, heirs, etc., will own the name; the composition of the product thus protected may be changed at will—although, possibly, no radical changes are ever made in successful articles of this class.

"Anybody can look through a millstone if a hole penetrates it; we have here supplied the hole—but the people above referred to will probably not care to look; "there are none so blind as those who will not see."—(*Notes on New Remedies*, Oct. 1895.)

Announcement.

TO THE EDITOR OF THE MEDICAL AND SURGICAL REPORTER:—Will you kindly announce that the following constitute the Business Committee for the next meeting of the State Society, to be held in Albany, during the last week in January:

Dr. H. R. Kopkins, Buffalo, Chairman; Dr. Nathan Jacobson, of Syracuse, and Dr. J. M. Winfield, of Brooklyn.

Members desiring to present papers are requested to promptly notify the Chairman of this committee.

I have also pleasure in making the preliminary announcement that addresses have been promised by the following prominent outsiders: Professor Wm. Pepper, of Philadelphia; Professor Jas. H. Etheridge, of Chicago, and President Eliot, of Harvard University, who will speak on the subject of "Medical Education of the Future."

By giving these items place, you will increase the interest in the next meeting and tend to make it more successful.

Very respectfully yours,

ROSWELL PARK,

President Medical Society State of N. Y.

Business Change.

EDITOR MEDICAL AND SURGICAL REPORTER.

DEAR DOCTOR:—The firm of A. L. Hummel, M. D., formerly located at 257 S. Fourth St., Philadelphia, has changed its name and address to the A. L. Hummel Advertising Agency, 108 Fulton St., New York.

Please note this change of address and oblige, Yours very truly,

A. L. HUMMEL ADVERTISING AGENCY.

New York, Oct. 11, 1895.

Treatment of Snakebite by Calcium Chloride.

Phisalix and Bertrand, at the Académie des Sciences (*Sem. Méd.*, June 19th), report the result of experiments with chloride of calcium in cases of snakebite. Its therapeutic action is not, as thought by Calmette, due to formation of some substance neutralizing the poison, nor to its entering the circulation and there destroying the poison as it would in a test tube, but depends simply on its local effect; it destroys the poison locally, and causes the tissues to slough, and so prevents absorption of the toxic material. Hence they conclude that the injections of calcium chloride must be made deeply at the actual spot where the fangs entered, and that they are useless if made in any other part.

THE MEDICAL AND SURGICAL REPORTER

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PHILADELPHIA, SATURDAY, OCTOBER 19, 1895.

EDITORIAL.

LOUIS PASTEUR.

"One of the few, the immortal names, that were not born to die."—*Halleck*.

"No true and permanent fame can be founded, except in labors which promote the happiness of mankind."—*Sumner*.

"When a man dies they who survive him ask what property he has left behind. The angel who bends over a dying man asks what good deeds he has sent before him."—*Koran*.

"Everywhere in life the true question is, not what we gain, but what we do."—*Carlyle*.

Died, of uremia, September 28th, 1895, at Garches, in the city of Paris, M. Louis Pasteur, Member of the Institute of France.

Such was the brief notice of the passing of one of the most noted scientists of the age.

Louis Pasteur was born at Dôle, Jura, on December 27th, 1822. He commenced his classical studies at Arbois College, and subsequently studied at Besancon, where he obtained his degree of Bachelier-ès-Lettres, and became an

instructor. In 1842 he entered as a candidate for the École Normale of Paris, but, passing only fourteenth in this list, he devoted another year to study, entering in 1843 as fourth amongst the aspirants. Already he had begun to devote himself to chemistry, and now, under Dumas at the Sorbonne, and Balard at the École, this study absorbed a large portion of his time. Under Delafosse he became a proficient in molecular physics also, and, while listening to this lecturer, struck upon the ideas regarding dissymmetry which at a later period of his life he developed at great length. In 1847 he took the degree of Doctor, and in the following year was appointed Assistant Professor of Physics at the Faculty of Sciences at Strassburg. At the end of 1854 he was entrusted, as Dean, with the organization of the newly-created Faculty of Sciences at Lille. Three years later Pasteur returned to Paris, and was ap-

pointed Director of Scientific Studies of the École Normale Supérieure, which post he held from 1857 to 1867. In 1856 the Royal Society of London awarded Pasteur the Rumford Medal for his researches relating to the polarization of light. He was decorated with the Legion of Honor on August 12th, 1853, was promoted to be an officer of that Order in 1863, and a Commander in 1868. In December, 1863, he was appointed Professor of Geology, Physics, and Chemistry at the École des Beaux-Arts, and in 1867 Professor of Chemistry at the Sorbonne, which latter chair he occupied until 1875. In 1862 he was elected a member of the Académie des Sciences (mineralogical section). Honored in 1868 by the Medical Faculty of the University of Bonn with the degree of doctor, he returned the diploma after the Franco-German war. In 1869 he was elected one of the fifty foreign members of the Royal Society of London. He became an Associate of the Académie de Médecine in 1873, was elected member of the Académie Française in 1881, in succession to M. Littré, and was received on April 27th, 1882. The following year Oxford University conferred upon him the honorary degree of Doctor of Science. In 1887 he was unanimously elected Perpetual Secretary of the Académie des Sciences, replacing M. Vulpian, but, owing to his health and the pressure of scientific labors, he resigned the post two years later, and was made an honorary Perpetual Secretary.

Pasteur's earlier scientific investigations were in the domain of molecular physics and chemistry, and as the result of these investigations he demonstrated that the products of inorganic nature, whether mineral or artificial, have never yet presented molecular dissymmetry; on the other hand, the substances which exert the greatest influence in vital manifestations, which are present and

active in the seed and in the egg at the moment of the marvelous starting of animal and vegetable life, all do present molecular dissymmetry. This dissymmetry signifies that the molecules have like parts oppositely arranged. This he held to be not true of all inorganic things, but to be true of everything in connection with sprouting grain or developing egg. He claimed that molecular dissymmetry is the naturally sharp line of demarcation between the chemistry of organic and inorganic nature.

He was diverted from this field of investigation to the study of fermentation. At that time scientists regarded fermentation as a phenomenon preliminary to, and initiating the processes of decomposition and disintegration. But the word was merely a name for a mystery which was explicable only by theory.

Some explained the cause of fermentation to be contact with the oxygen of the air; others made it depend on the presence of the ferment, an albuminoid substance known as catalytic, the most common example of which is yeast; while the prevalent theory was that of Liebig, that contact with air is necessary to give the yeast its activity. Pasteur, however, demonstrated that it is caused by a living organism.

The Lancet (October 5th, 1895), in an editorial review of the great scientist and his work, says:—

His early physical and chemical training developed in him an accuracy and a wealth of experimental resource without which little of his great work could ever have been accomplished; and his experiments on the tartrates and paratartrates, commenced when he was a young man, little as they seemed to bear on his after-work, really formed the basis on which most of his biological experiments rested. He was struck by the fact that during the process of fermentation of ordinary dextro-tartrate of ammonia in a solution containing organic matter, a distinct micro-organ-

ism made its appearance. Then, too, he had been able to break up paratartronic acid by the addition of green mould, in the presence of inorganic crystalline salts such as phosphates and salts of ammonia only; this was accompanied by the disappearance of the dextro-tartaric acid and an increase in the number of fungi and bacteria in the fluid. Out of these experiments arose the controversy that raged round the subject of abiogenesis, and this was settled beyond dispute by experiments perfected by Pasteur, although he followed the lines of those instituted by Spallanzani and Schulze, when he showed that bacteria and fungi, though developing most readily in those solutions which contained organic matter, were, nevertheless, capable of growing and multiplying in fluids in which no organic matter was present, so that the theory that they were developed from the running together of albuminoid molecules was once and for all time laid to rest. He further showed that fluids containing organized nitrogenous matter might remain unchanged for an indefinite length of time, even under conditions which, on the old theory of biogenesis, should be most favorable to the development of organized living cells, if care were taken to previously destroy any living organisms which might be already present and to prevent the entrance of such organisms from without. From this point the transition was comparatively easy to the position that fermentation and putrefaction changes, which only supervened when certain kinds of micro-organisms were allowed to gain access to fluids containing nutritive materials, were really the result of the action during their life-history of such micro-organisms. His researches on fermentation in connection with French wines and his experiments with the mycoderma aceti soon convinced him that special kinds of fermentation were set up, given certain media, by different kinds of micro-organisms, each form having its own special fungus or bacterium.

The next step was the differentiation of a special etiological factor in the pathogeny of the silkworm disease, which at one time threatened to ruin the silk industry of France. He traced

the "spot" disease or "pebrine" to the nosema bombycis, which had previously been described by Naegeli as small, glistening, oval corpuscles which lead a parasitic life in the silkworm at its various stages; and by appropriate treatment—the destruction of all silkworm eggs that were suspected of being unhealthy—he was able to assist the silkgrowers almost to stamp out this disease. He went beyond this, however, for he showed how certain chains of micrococci in the alimentary canal of the silkworm gave rise to another disease characterized by a peculiar lethargy. By these two sets of experiments he laid the foundation of the germ theory of disease, which has since borne such abundant fruit in the regions of practical and preventive medicine. He demonstrated the fact that certain specific organisms endowed with definite morphological and physiological characters are capable, by their presence and by the action of their products, of giving rise to specific infective disease; he pointed out the special rôle played by certain definite organisms in the production of different kinds of fermentation, putrefaction, and disease; and, in fact, on his observations and ingenious experiments as a basis built up a theory of a living contagium, or rather brought it from a condition of chaos to a position protected from assault by a fortification of scientific proof. Instead of assigning to micro-organisms a general and common action in the initiation of the above processes, he allotted to each one its own special part.

Such specific micro-organismal action having been traced in one or two instances, it was a comparatively short step to the demonstration of an organized and living contagium in other specific infective diseases, and anthrax, fowl cholera, and a number of similar diseases were in turn studied, and with similar results. His next most important investigations were connected with the production of immunity by means of slight attacks of a disease set up by the use of a modified virus. His experiments on anthrax and fowl cholera may now be looked upon as classical, and there can be no doubt that, without his discovery of the action of specific organisms in the production of the sev-

eral diseases with which they are associated, the theory of toxins and antitoxines, which promises to play such an important part in the treatment of disease, could never have been advanced, or if advanced could never have been proved.

Pasteur's work in connection with hydrophobia marked another great advance on any of his previous work, in so far as he was able to prove that not only could disease processes be prevented by "vaccination" prior to the injection of the *materies morbi*, but that the progress of the disease might be cut short or aborted even when the vaccination was carried on only after the virus had been introduced into the body. Much is written about the want of success in a certain proportion of the cases that have come under Pasteur's method of treatment for rabies; but anyone who will dispassionately and without bias examine the statistics of the results obtained in the various antirabic institutes, and compare these with the statistics of the cases that have not been so treated, cannot fail to be impressed by the enormous difference in the mortality under the two sets of conditions. Without vaccination the antitoxic serum method of treatment could never have existed, and it may be confidently anticipated that in all those diseases in which there is a localized formation of a poison, which in turn appears to act specially upon certain tissues, an antitoxic method of treatment may ultimately be obtained. It will, however, be a long time before it is fully recognized how great has been Pasteur's influence on this work, not only during the time that he was actively engaged in experiment, but also through the counsel and criticism which he bestowed on the work of his pupils and colleagues during the later years of his life. Pasteur was always the head of the Pasteur Institute. Although he has not published a line since December 27, 1886—when he wrote his famous letter upon hydrophobia, which appeared in the first pages of the *Annales de l'Institut Pasteur*—his mind and hand may be traced, directly or indirectly, in every page of the nine volumes in which are recorded the work carried on in this Institute; moreover Listerism is the outcome of the application by a great surgeon to his own work

of some of the principles which Pasteur enunciated, as a result of which surgery has been raised from the level of a mere handicraft to the dignity of a science.

Pasteur was a man of a century. He had a great mind and an infinite capacity for detail; he had great tenacity of purpose, though his horizon was limited by no narrowness of vision. That he was a true Frenchman goes without saying, but his discoveries belong to the world. No man has contributed so greatly to our knowledge of the fundamental principles that govern the course of disease processes, and few have had so little to retract of what they had published. Such a result could only be the outcome of accurate working, clear thinking, and lucid exposition.

It is interesting to note of such a man that his religion, his simplicity, and his affection for his parents and for his family were maintained unaltered in their purity through all changes and controversies. His was not the wisdom of the agnostic, but the faith of a clear-sighted man who, interpreting much through his grand intellect, was still conscious of a world beyond that which he had probed deeper, perhaps, than any of his fellows.

France may well mourn the loss of such a man; and all men, irrespectively of nationality, who have a love for truth and an admiration of directness of purpose and keenness of intellect, must mourn with her.

Epicystotomy without Siphon.

Polombieri (*Gaz. degli Osped.*, June 8, 1895) reports a case of vesical calculus in a boy aged 8, in which he removed the stone (weighing about 8 g.) through a suprapubic incision. Having opened the abdomen, he fixed the bladder to the abdominal walls by two catgut sutures before incising the bladder. After removing the stone he sewed the bladder up with four catgut sutures. On testing its continency, a few drops were found to exude. One of the sutures fixing the bladder to the abdominal wall was left in. The abdominal incision was then closed, no drainage being used. A catheter was fixed in the bladder through the urethra, and the bladder washed out with boracic solution every three hours.

ABSTRACTS.

MEDICAL EDUCATION IN AMERICA.

Dr. John Madden, (*New Science Review*, October, 1895,) writes:—

The President, in his last annual message to Congress, recommended the establishment of a National Public Health Department in the following language:

"I am entirely convinced that we ought not to be longer without a National Board of Health or National Health Officer charged with no other duties than such as pertain to the protection of the country from pestilence and disease. This would involve the establishment, by such board or officer, of proper quarantine precautions, or the necessary aid and counsel to local authorities on the subject, prompt advice and assistance to local boards of health or health officers in the suppression of contagious diseases, and, in cases where there are no such local boards or officer, the immediate direction by the National Board or Officer of measures of suppression, constant and authentic information concerning the health of foreign countries and all parts of our own country as relating to contagious diseases, and consideration of regulations to be enforced in foreign ports to prevent the introduction of contagious diseases into our cities, and measures which shall be adopted to secure their enforcement."

Equally with the right of enacting sanitary laws is the right of the General Government to provide for the education of physicians, to say what shall be the minimum of attainments before the degree of Doctor of Medicine shall be conferred upon any one who wishes to practice medicine and surgery. With this matter, however, the General Government has done nothing, and the State but little. Almost any association of individuals can obtain a charter from an accommodating legislature authorizing the establishment of a "medical college," and the process of manufacturing practitioners of medicine begins forthwith. There is no system of censorship, no commission of education, to say what shall be the test by which the fitness of

the teachers of this new institution shall be judged, what the nature and extent of its laboratory facilities, of its hospitals for the bedside demonstration of disease phenomena, nor what shall be the preliminary education of its students. In fact, it may be and often is a mere business enterprise gotten up for the purpose of advertising a few ambitious men of rather doubtful ability; while the education of medical men is a secondary consideration. No matter how illy prepared the candidate may have been upon his entrance into "college," and no matter how short or superficial the course of instruction may have been, a diploma from an institution of this kind entitles him to the protection of the law, and qualifies him to give expert testimony upon any subject in any way related to medicine or surgery. In some States there are Boards of Medical Examiners whose authority is necessary to legalize a diploma; but even in these States the road to a doctor's degree is altogether too easy to travel.

The objection to schools of this kind, then, is that the training they give is insufficient. Their courses of instruction are too short and necessarily superficial. The preliminary education of their students is practically nothing; and no matter how earnestly they may work, they can acquire no thorough medical education. The most that can be done for them is to point out the way they should go to become competent physicians; and this competency must necessarily be obtained in practice at the expense of their patients if it is obtained at all.

It is not the purpose of this paper to discuss the merits of such institutions as are confessedly divorced from the teaching of medicine as an experimental science. It should be remembered, however, that their charters enable them to confer the degree of Doctor of Medicine, and their graduates are entitled to all the rights and privileges guaranteed by law to the medical profession. There

is no department of medicine or surgery which the exclusive "pathist" or "therapist" may not invade, assured of the law's protection in all the crimes he may commit in the name of medicine, and honored by the laity with the title of Doctor.

Earnest medical men recognize this lamentable state of affairs, and a good deal of effort is being made by individual colleges, and by some concerted action, to compel the better education of physicians. Better preliminary training for entrance, and more especially a longer course of study before graduation, have been adopted by many of the best schools; but the good which has come from this improvement is largely neutralized by the conduct of the scores of unworthy schools whose requirements for entrance and graduation are very easily complied with. "Students need have no fears of the entrance examination," may be read in the annual announcement of one of the schools of this class, and the language of others I have before me, though less direct, means the same. Students failing to pass the entrance examination of a school which is honestly trying to properly train young men and women for the work of the physician and surgeon, instead of increasing their capital stock of preliminary preparation, promptly seek the school whose ideals are not so high; and those who fail in the first or second year's work in the school of rigid discipline promptly carry their fortunes to the institutions which advertise that their requirements are easily met. It should be remarked here that the student is received in open arms by his new alma mater, and given credit for "all the courses of lectures" which he listened to in his former college, whether he learned anything from them or not. The most that is required of him is a certificate from the secretary of his former college, simply stating that he was a student of that college for the time the courses were given. "I'm going to leave this — school," said a young man to the writer once after an examination, "and I'm going to a school in —, they will graduate a man there who could not pass a 'quiz' here." The speaker had been a student of the school he anathematized two years. He had

been admitted on a country district school teacher's certificate obtained in one of the "back" counties of the Southwest. He was plainly and picturesquely unfit to begin the study of medicine, and it would have been manslaughter to grant him a license to practice. He went to the institution that made graduation easy, and probably secured what his ambition craved; for his second choice has the reputation of never "plucking" a man. A few months ago a graduate of this same school was put upon the witness stand in a court in Wisconsin to give expert testimony as to the insanity of a man charged with murder. He said something about the prisoner having had inflammation of the optic nerve. When asked to describe in full the phenomena of this condition, he said it was "a kind of weakness of the nerve," and here his information and descriptive powers failed.

Another school of this class is responsible for conferring the degree of Doctor of Medicine upon a man of whom the following statements are true. He was so totally lacking in preliminary training that he could not write the simplest English intelligently. He once asked the writer of this article to dictate, and he would write, a certificate setting forth that a certain person had been injured and was unable to appear in court. Glancing over what he had written, the first line read, "To whome it may concern." Further on in this choice bit of manuscript was the word "torge." What did this mean, this t-o-r-g-e? "Why," said this genial ignoramus, "don't you know what torge is? when you go nearer anything." He meant "toward." This man attended a medical college five months. He had a family to support and no more money to spare for an education at that time. He then obtained employment as a street car conductor, in which occupation, according to his own admission, he was engaged continually for a little more than seven years. He then found himself possessed of sufficient funds to enable him to attend another five months in the same "college," at the end of which time he received a diploma and began to practice medicine. The man afterward attended one of the bet-

ter schools for a period of four months, and a diploma of that honorable institution now hangs on his wall. This diploma, however, does not keep him from committing offenses in the name of medicine.

Dr. F. W. Reilly, of Chicago, in compiling some statistics relating to medical colleges in the United States and Canada, received the following letter from Yale University. I give the letter in full because it accurately portrays what the best medical schools are trying to accomplish. The figures show sixty students in the first year, twenty in the second and only fourteen in the third, says the letter: * "You will note that there has been a larger number of students in the first year than in the second or third. This has been due to the fact that a very considerable number of students fail at the end of the first year, and then they have to repeat their work. Our entrance requirements are placed at the high school grade in the subjects in which we require examinations, and these requirements are well enforced, yet we have this large percentage of failures of men who cannot stand the work of our first year. I do not know whether this is the experience elsewhere but certainly our matriculation requirements are higher than the average of the country, and the whole thing seems to me to be a strong argument for the necessity of a higher grade of matriculation. I have felt for some time that this matriculation requirement was more needed in this country than the increase of time of study; that is, that three years with well prepared students would be better for the profession than a larger number of students kept at their work a year longer. This opinion, however, does not seem to be the one which has prevailed. We have delayed starting the four years' course, hoping that there would be a general increase in matriculation requirements first, and while we do not altogether give up the hope of increasing matriculation examinations, we are about to adopt a four years' course in conformity with other schools of the better class." It is evident that those of the first year students who are obliged to repeat their

work do not do so in Yale, else there would be no such constant difference in numbers in favor of the first year group.

Another letter from a well-known school, contributed to the same article, says, "small attendance in our second course is attributed to the fact that those who attended with us in 1893-4 can graduate in _____ medical college at the end of this term, while we would require them to attend to the end of 1895-6."

The author once heard the dean of a medical faculty severely censure the professor of physiology of the same faculty because thirty students out of one hundred and twenty failed to pass the examination in that study. It was admitted that this teacher had unusual ability in clearly presenting the subject he taught, and that he had made valuable contributions to the literature of physiology. It was also admitted that he asked only such questions as should be answered by the student of average attainments. The plea was that such examinations tended to drive away many students who would seek their diplomas in less worthy schools, and that the cause of medical education would thereby suffer. In other words this college wished to raise the standard of education, but its own preservation warned it to do so cautiously; the examinations were, therefore, to be such as suited the capacity of the students, regardless of their acquaintance with the subject. This school, by the way, was one of the pioneers in adopting a three years' graduated course of study, since extended to four years. That it has not shrunk from its duty to higher medical education is evident from the fact that its first-year class has one hundred and sixteen students, while its fourth-year class has sixty-five. The weeding-out process still continues, but it is to be observed that even this school could not live up to its ideals in face of so much unworthy competition.

To cite any number of cases illustrating the harm done by the actual sacrifice of life and health to the ignorance of improperly educated physicians is unnecessary. Every qualified intelligent man who has been in the practice of medicine for ten years could contribute a

* Journal American Medical Association, January 12, 1895.

good-sized volume on the subject. It is not to be expected that any system of education will give unerring judgment and invincible skill. The sins here condemned are those which are born of that lack of knowledge which every man of ordinary intelligence would be able to acquire in a proper medical training. For obvious reasons, too, it is not possible to be specific as to those schools which are lamentably lacking in the instruction they give, but they are known to physicians, and their name is legion.

There are at the present time about eighteen thousand students in the medical colleges of the United States. Of this number about five thousand (five thousand and fifty-two) are enrolled in schools which have students in four-year classes; but only four hundred and seventy-five are doing fourth-year work. Five other schools having an attendance of five hundred and fifty-nine students have established four-year courses; but, as yet, have no students doing fourth-year work, and three schools having an aggregate attendance of one thousand and sixty-three announce that a four-year course will be established next year. We have then six thousand six hundred and seventy-four students attending schools which have established a four-year course of instruction, or have decided to do so next year, about thirty-one per cent. of the entire number. There are many excellent schools which still have courses of instruction extending over a period of only three years; but many schools graduate their students after two years or "two courses of lectures." The fact that a school has a course of study extending over a period of four years, ought, perhaps, to be taken as *prima facie* evidence that it is giving its students a good medical education, and a glance at the list of those schools tends to confirm this evidence; but of the sixty-eight or sixty-nine per cent. which are found in schools outside of the four-year class, it is pretty safe to say that at least one-half, or thirty-four per cent. of the whole number, are not receiving adequate medical training.

How have the efforts upon the part of the best schools to elevate the standard of medical education been met by those seeking to enter the profession? The evidence is not reassuring. While there

is an increase of nearly twelve and one-half per cent. in the number of students enrolled in 1894 over those of 1893, yet there is a decrease of nearly three (two and seven-tenths) per cent. in the number enrolled in the fourth-year classes. (These figures for schools in both United States and Canada.) Commenting upon Dr. Reilly's article above referred to, and from which all the above statistics are taken, the editor of the *Association Journal* remarks: "The advance that has been made in the last decade is not so apparent as to be very gratifying to the friends of higher medical education generally, or to the medical profession."

The establishment of a uniform and thorough system of medical education can never be accomplished by the medical profession alone. Those schools which recognize the needs of a higher medical education, and are conscientiously training young men and women for the practice of medicine and surgery, will draw to themselves earnest and conscientious students who seek to prepare themselves for their life work as a matter of principle. So long, however, as medical schools are regarded from a commercial standpoint, as an investment which shall pay a dividend either in fees from their students or by advertising their promoters, and are untrammelled in their conduct by State or National authority, and so long as students can be found who regard a "diploma" as so much capital invested, there will be unworthy schools and unworthy physicians. Unfortunately, too, statistics show that the latter class has about one-third of the whole number of students, and that the ratio is increasing.

The remedy for this condition can only be found in the General Government assuming control, not only of the sanitary affairs of the country, but of all matters relating to the education of physicians. The keeping out of contagious diseases, and adopting measures of controlling the same when within our borders, are certainly not more important than properly educating our physicians. How many lives are annually sacrificed through the ignorance and incompetence of illy-prepared doctors? Who will deny that the number of these victims is greater than those of any pes-

tilence which we strive so hard to keep from our midst? Let there be established as free as possible from political control a department or bureau of public health. This bureau should have full power to formulate a course of medical instruction; to say what the educational requirements shall be for entering; what shall be the nature and extent of laboratory work, and what the facilities for hospital instruction. There should also be provision made for examining graduates by the same authority, before a license is given to the practice of medicine. This system of education should, of course, be uniform for all medical schools, and work done in one school should be recognized and given full credit in every other school. This system would be of great advantage to the student who, with a view of engaging in specialized lines of practice, might wish to take certain portions of his course with such instructors as have shown the greatest ability in the work in which he is particularly interested, or in the hospital or laboratory most favored by locality to offer the best possible field for practical research.

It is scarcely necessary to enter into minute details of the scheme above outlined. They could easily be suggested. A National Board of Health might be formed, for instance, of the Presidents of the State Boards of Health, and the President of each State Board of Health might sustain the same relation to medical education in his own State as the Superintendent of Public Instruction sustains to the public schools of the State. Going a step further, the fitness of all candidates for positions as teachers should be passed upon by the National Board, as well as the granting of licenses to practice medicine. To facilitate the performance of its duties, this National Board of Health should be divided into committees, and to each committee be delegated the work of considering measures of a certain class, the same as is now done in legislative bodies. Local committees or boards could be formed, for instance, of the Presidents of three neighboring State Boards of Health for the purpose of examining candidates for licenses to practice, and for the performance of such other duties as the National Board of Health might see fit to impose.

Objections to this plan would be raised upon the ground that it would create a hardship for those who wish to study or to practice only "special systems of medicine," the various "pathists," "therapists," "scientists," "curists," the one-sided, the narrow, the deluded, and the dishonest, all of whom stand equally as "doctors" in the eyes of the laity. These objections should not be considered valid if it is granted that the Government has the same power to protect the lives of its subjects against the ignorance, incompetence and dishonesty of medical practitioners as it has against the invasion of contagious disease. Medicine is no longer a speculative science. It rests upon a broad and firm foundation of experimental knowledge, of demonstrable knowledge. He who would study it must come prepared with a liberal education, with a mind trained for observation, for investigation, and with a power to formulate general truths when the evidence is placed before him. Has not the Government the right, for the protection of its subjects to demand that this preparation shall be made, and that this demonstrable knowledge shall be acquired, before the degree of Doctor of Medicine shall be conferred? If any one who has acquired this knowledge wishes to wed himself to any therapy, to any special method of treating disease, let him stand before the people in his own light. He shall not announce himself to the public as a Doctor of Medicine alone, but shall always be compelled to use the name of his exclusive system in connection with his legal title. Then, and only then will he cease to be getting money under false pretenses, and his short comings will not be charged to the shame of an honorable and responsible college.

Foreign Bodies in the Uterus.

Albertin (*Provence Med.*) collects 24 cases. Two are original. In one case a laminaria tent remained nearly eleven months in the uterine cavity, and in the second a carbon rheophore was left behind, and did not come away for a week. In neither instance was there any symptom of irritation, and both the tent and the rheophore were expelled spontaneously.

LIBRARY TABLE.

"TEXT-BOOK OF DISEASES OF THE KIDNEY, AND URINARY ORGANS," by Prof. Dr. Paul Fürbringer. Translated from the Germans with annotations, by W. H. Gilbert, M.D., with commendatory letter from Sir Thos. Grainger Stewart, M.D., F.R.S.E. In two volumes. Vol. I. London, H. K. Lewis, 136 Gower Street, 1895.

The present volume is a valuable addition to the works already upon the market dealing with urinary diseases, and the reputation of Prof. Fürbringer as an able writer in the various departments of medicine, particularly with diseases of the kidneys, establishes an enviable place for the book among its many peers. Some of the views adopted are, perhaps, at variance with other well-known writers, but not in sufficient degree to render the product appreciably less valuable, and the text shows the author to be a hard worker in the lines of practical research.

INTERNATIONAL CLINICS :—A quarterly of clinical lectures on Medicine, Neurology, Surgery, Genito-Urinary Surgery, Gynecology, Obstetrics, Ophthalmology, Laryngology, Pharyngology, Rhinology, Otology, and Dermatology. Edited by Judson Daland, M.D., Philadelphia; J. Mitchell Bruce, M.D., F.R.C.P., London; David W. Finlay, M.D., F.R.C.P., Aberdeen, Scot. Vol. iv., Fourth Series. Philadelphia, J. B. Lippincott Co., 1895.

International Clinics is always interesting reading and the accepted clinical lectures are well chosen by the editors. This volume is full of pregnant topics and will meet the most varied tastes and specialties. The names of Sir Dyce Duckworth, Prof. Ernest Leyden, Horatio C.

Wood and Reginald H. Sayre, as among the many contributors, need only to be mentioned to suggest the value of the work. H. C. Wood's article on "A Case of Pachymeningitis following Thermic Fever" is interesting reading and highly characteristic of this most able clinician in its terseness and clearness of style. Thos. J. Mays gives a practical talk on the management of the consumptive, in which he lays great stress on "building up the exhausted energy," and warns us against relying solely upon drugs and fresh air. Reginald H. Sayre gives a well-illustrated article on "Lateral Curvature of the Spine," and Sir Dyce Duckworth treats of "Jaundice from Obstruction in the Common Bile-Duct" in an easy fluent style. Many other attractive lectures might be referred to, but these may be considered as representative. Altogether, the volume is comprehensive in its scope and preserves the scholarly tone accorded its predecessors.

THE PHYSICIAN'S GERMAN VADE-MECUM :—A manual for medical practitioners, for use in the treatment of German patients, by Dr. Richard S. Rosenthal. Vol. I., Gynecology and Obstetrics; Vol. II., General Practice. Chicago, The Rosenthal Publishing Co.

These books are intended as an aid to physicians in the treatment of their German-speaking patients, and contain most of the questions likely to be asked in the intelligent treatment of the diseases met with in general practice, as well as in the specialty of gynecology and obstetrics. The author's established reputation as a teacher lends additional value to the work.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Treatment of Epilepsy, with Especial Reference to the use of Opium.

Joseph Collins, (*Medical Record*). About a year ago, Professor Flechsig, of Leipzig, published a short article on a new method of treating epilepsy, which, in his hands, had given most gratifying results. It consists in administering opium in the shape of the extract or pill in large doses for a period of six weeks. The dose of opium in the beginning is from one-half to a grain, and this is gradually increased until the

patient is taking about fifteen grains a day in doses of from one to four grains. The maximum dose is reached by the end of the first week. At the end of six weeks the opium is stopped suddenly, and for it bromide of sodium, or potassium, in doses of one-half drachm, four times daily is substituted. After these large doses of bromide have been kept up for some time, the dose is gradually decreased until the patient is taking less than two scruples a day. The sudden cessation of administering the opium and the exhibition of the bromide is quite essential.

Notwithstanding the fact that no sinister results accompanied the administration of opium in such

large doses, still, it should be stated that anyone who would apply this plan of treatment must be watchful and scrutinizing, especially during the first week, until the patient becomes accustomed to the large doses.

The most satisfactory results were obtained in very chronic epileptics, and particularly those who were not responsive to large quantities of bromide. In epilepsy dependent on or associated with gross organic lesion of the brain the treatment seemed to give better results than in pure idiopathic epilepsy. By gross organic lesion is meant epilepsy associated with defective development.

The writer sums up his conviction as follows :

1. The plan suggested by Flechsig is not a specific in the treatment of epilepsy.
2. In almost every case in which this plan of treatment has been tried there has been a cessation of the fits for a greater or less time.
3. A relapse generally occurs in a period of a few weeks to a few months.
4. The frequency of fits after the exhibition of opium is, for the first year at least, lessened more than one-half.
5. The attacks occurring after the relapse are much less severe in character than those that the patient has been accustomed to having.
6. This plan of treatment is particularly valuable in ancient and intractable cases.
7. In recent cases of idiopathic epilepsy it cannot be recommended.
8. The opium plan of treatment is an important adjunct to the bromide plan as ordinarily applied.
9. The opium acts symptomatically and merely prepares the way for and enhances the activity of the bromide and other therapeutic measures.
10. This plan of treatment permits the use of any other substances which are known to have a beneficial action in epilepsy.

Acute Arsenical Poisoning With Subsequent Multiple Neuritis.

Dr. R. Meirowitz reported a case at a recent meeting of the New York Neurological Society of a young man of 19, who, by mistake, swallowed about a teaspoonful of arsenious acid. Perceiving his mistake, he immediately produced not very copious vomiting by thrusting his finger into the pharynx. Three hours later he had pain in the stomach, vomiting, bloody urine, weak pulse, and intense thirst. These conditions lasted about six days, and there was constipation. On the second day, vision and hearing became impaired; there was tinnitus and bleeding from the ears, followed by hemorrhage and pus. On the fourth night delirium, with hallucinations of sight. The tongue was blistered and swollen; the lips, eyes, and face edematous. Had headache and collapsed the seventh night, but rallied next morning. The ninth day the stomach tolerated a little food, and on the eleventh day he left his bed, having lost twenty pounds. The third week he developed typical neuritis of rather severe form in both legs.

The Treatment of Fracture of the Radius.

Hennequin summarizes the conclusions of his study on this subject in the *Revue de Chirurgie* as follows :

1. That it is necessary to reduce the fracture of the lower extremity of the radius.
2. That it is necessary to maintain reduction by means of a suitable apparatus, leaving the fingers entirely free.
3. That the patient must use the hand as soon as possible after union.
4. That massage fulfills but one indication, and must not be employed as the only means of treatment, except in those without displacement. Having no other pretention than the restoration of function after consolidation, its rôle becomes more restricted if the fingers are left at entire liberty during the treatment.

Abnormalities in the Chemistry of Gastric Digestion in Cases of Chlorosis.

Hayem examined 72 patients (67 women and 5 men). He found excess of pepsin in the contents of the stomach, 36 times; hyperacidity, 6 times; deficiency of pepsin, 28 times; complete absence of pepsin in no case; normal chemical conditions in 2 instances. In 3 cases the deviation from the normal was insignificant, although the dyspeptic symptoms were marked. In 36 cases there was distinct acid fermentation; in 34 cases there was none.

These figures help to explain the great frequency of dyspepsia in chlorosis. A closer connection between the intensity of chlorosis and that of the associated dyspepsia cannot be demonstrated, for one often sees severe chlorosis with but slight dyspeptic symptoms, and conversely. Hayem considers the common method of feeding chlorotic patients who have dyspeptic symptoms with iron, arsenic, quinine, and other irritating substances, as altogether hurtful, and calculated to produce serious disturbances in the stomach, and in particular to cause gastric ulcer. Treatment ought to begin, as in other forms of dyspepsia, with simple, properly-regulated diet.—*Deut. Med. Zeit.*

Hydatid Cyst of the Liver Infected by the Pneumococcus.

Galliard mentions the case of a patient under his charge who was admitted with symptoms pointing to intestinal obstruction. These symptoms soon passed off, but the liver remained large. An exploratory puncture yielded pus without admixture of bile; and pneumococci, without other organisms, were found in the pus. The cyst, which was produced by hydatids, was incised, and the patient recovered.—*Gaz. Med. de Paris.*

Chorea Rapidly Cured by Electro-Static Baths.

By Regnier (*Archives de Neurologie*). An attack of articular rheumatism occurred at the age of 7, and was complicated with endocarditis. The second occurred two years later, and was followed, after fifteen days, by a severe attack of chorea. Daily electro-static baths of 30 minutes' duration were ordered on the third day of the disease, and continued for three weeks, afterwards being gradually dropped. The effect from the first bath was quite manifest, and each bath was followed by a progressive diminution of the choreic movements, and in two months recovery was complete.

Comparative Frequency of Fibro-Myomata at Different Ages.

Dr. Charles Greene Cumston, of Boston, in an article on "Parietal Fibro-Myomata of the Uterus," says:

"It is the prime of life that fibroids develop with the greatest frequency. Gusserow has collected 919 cases, as follows:

10 years . . .	1 case of fibro-myoma.
14 " . . .	1 " "
16 " . . .	1 " "
17 " . . .	1 " "
18 " . . .	3 " "
19 " . . .	8 " "
20 to 30 " . . .	156 " "
30 to 40 " . . .	357 " "
40 to 50 " . . .	338 " "
50 to 60 " . . .	36 " "
60 to 70 " . . .	12 " "
70 and above " . . .	5 " "

"Winkel, with 527 cases other than those of Gusserow, gives the following table:

20 years . . .	9 cases of fibro-myoma.
20 to 30 " . . .	98 " "
30 to 40 " . . .	180 " "
40 to 50 " . . .	180 " "
50 to 60 " . . .	52 " "
60 to 70 " . . .	6 " "
70 and above " . . .	2 " "

"From these tables we see that the maximum of frequency is between 30 and 50 years, and from this period the frequency of the affection decreases progressively toward the two extremes of life.

"Unmarried life, abstinence from coitus, sterility, does not seem to exercise any influence upon the production of this neoplasm contrary to the affirmation of certain authors, for they are met with more frequently in married women. Dupuytren was of this idea. Of 58 cases of fibro-myomata collected by him, 54 were married or at least not virgins. Of 51 cases nine women had not borne children. Among 959 cases mentioned by Schroeder, Hewitt, Marion Sims, More-Madden, Engelmann and Gusserow, we find 672 married women, 287 unmarried, but not all virgins; and of the 672 married subjects, 464 were mothers."

SURGERY.

Radical Cure of Hernia.

Fergusson (*Annals of Surgery*, May, 1895), says that an essential defect in many operations which are performed for the cure of hernia is removal of the sac. He advises that for the radical cure of inguinal hernia the following operation should be adopted. An incision 3 to 4 inches long is made parallel to Poupart's ligament, over the inguinal canal to the pubic spine. All structures between the internal and external abdominal rings and above the canal are divided. The sac is then dissected out, opened for inspection, and its neck loosened from its attachments. It is then several times transfixed in a proximal direction with a stitch which has been firmly secured to the distal end, so that when the proximal end is pulled on the sac is thrown into folds. Finally, the needle which carries the thread is passed through the abdominal wall, transfixing all the structures in

front of the superitoneal tissue, and emerging 1 inch above the internal abdominal ring. Before fastening the sac it is best to raise the spermatic cord and remove any supernumerary veins, or, if this is not requisite, to make a circular incision through the fascia of the cord. The suture which folds the sac is now pulled tightly, fastened to the external oblique muscle, and the sac adjusted in proper position. Next the fascia transversalis, from the pubic spine to the internal abdominal ring, is sutured with three or four invagination sutures. The inversion suture is inserted by piercing the deep fascia parallel to Poupart's ligament in two places from without inward with the first bite of the needle. The needle is drawn through it, and the thread is carried across to the border of the conjoined tendon, where a similar bite is taken. The approximation of the muscular aponeuroses is then done with three or four mattress sutures from below upwards, in such a manner as to bring the lower and external structures—Poupart's ligament, fibres of the external oblique, internal oblique, and transversalis muscles—over and in front of the internal and upper structures—the conjoined tendon, external, oblique, and all beneath the cord. To complete the operation the cord is laid upon the external surface of the external oblique muscle and the skin sutured over it. The author recommends this method on anatomical and pathological grounds. He has used it only for one year, and hence sufficient time has not elapsed to enable him to speak of results. For the radical cure of femoral hernia the following operation is recommended: A skin incision is made parallel to Poupart's ligament, and half an inch above it. This allows the operator to reach the neck of the hernia with ease and accuracy; the scar will be out of reach of pressure or friction of the thigh, and it allows examination of the inguinal canal and rings. The sac is dissected from the surrounding structures and opened; if any omentum is found it is tied with interlocking sutures and cut away, and the raw surface of the stump covered with peritoneum before it is replaced in the abdomen. The sac is now folded upon itself, and fastened within the aperture of the crural canal. When the sac is sufficiently large to close the internal opening of the canal, suturing of the pubic fascia to Poupart's ligament, and placing the falciform process in the external opening of the canal by means of inversion sutures of strong chromic gut or silk, is sufficient. When the sac is small, the hernial opening large, and Poupart's ligament cannot with ease be approximated to the pectineal fascia, a periosteal flap may be utilized, or a flap of the pectineal fascia and muscle can be raised and stitched to form a buttress instead.

NEWS AND MISCELLANY.

Dr. Laurence Turnbull has removed to 255 South 17th Street, from 1716 Chestnut Street.

At a recent meeting of the Trustees of Jefferson Medical College, Philadelphia, the honorary degree of LL. D. was conferred on Dr. John Collins Warren, Professor of Surgery in Harvard University.

American Association of Obstetricians and Gynecologists at the late meeting in Chicago elected the following officers for 1896:

President—JOSEPH PRICE, Philadelphia, Pa.
First Vice-President—A. H. CORDIER, Kansas City, Mo.

Second Vice-President—GEORGE S. PECK, Youngstown, O.

Secretary—W. W. POTTER, Buffalo, N. Y.

Treasurer—X. O. WERDER, Pittsburg, Pa.

Place of meeting—Richmond, Va.

Time—Second Tuesday in September, 1896.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, UNITED STATES ARMY, FROM SEPTEMBER 22, 1895, TO OCTOBER 12, 1895:

A board of medical officers to consist of Colonel Charles H. Alden, Assistant Surgeon-General; Lieutenant-Colonel William H. Forwood, Deputy Surgeon-General; Lieutenant-Colonel David L. Huntington, Deputy Surgeon-General; Major Charles Smart, Surgeon; Major Walter Reed, Surgeon, is constituted to meet at the Army Medical Museum Building in this city on Tuesday, October 1, 1895, at 10 o'clock A. M., for the examination of candidates for admission to the Medical Corps of the Army.

Major Henry Lippincott, Surgeon, is relieved from duty at Fort Adams, R. I., and ordered to Fort Sheridan, Ills., for duty, relieving Major Alfred C. Girard, Surgeon. Major Girard on being thus relieved, is ordered to Fort Douglas, Utah, for duty, relieving Major Charles L. Heizmann, Surgeon. Major Heizmann on being thus relieved is ordered to Fort Adams, R. I., for duty.

Captain Richard W. Johnson, Assistant Surgeon, will be relieved from duty at Fort Huachuca, Ariz., upon the arrival there of Captain William J. Wakeman, Assistant Surgeon, and ordered to Fort Logan, Colo., for duty.

Leave of absence for one month, to take effect about the 5th proximo, is granted Major Joseph B. Girard, Surgeon, Presidio of San Francisco, Cal.

Major James C. Worthington, Surgeon, is granted leave of absence for three months on surgeon's certificate of disability.

Captain Guy L. Edie, Assistant Surgeon, is relieved from duty as assistant to the Attending Surgeon in the city of Washington.

First Lieutenant Frederick P. Reynolds, Assistant Surgeon, is relieved from duty at Fort Sam Houston, Texas, and ordered to Fort Clark, Texas, for duty, relieving Captain Benjamin L. Ten Eyck, Assistant Surgeon. Captain Ten Eyck, on being thus relieved, is ordered to Columbus Barracks, Ohio, for duty.

First Lieutenant William W. Quinton, Assistant Surgeon, will be relieved from temporary duty at Fort Logan, Colorado, to take effect upon the ar-

rival there of Captain W. W. Johnson, Assistant Surgeon, and ordered to Fort Riley, Kansas, for duty.

Lieutenant Colonel Joseph R. Gibson, Deputy Surgeon-General, will report in person to the President of the Army Retiring Board at Washington Barracks, D. C., at such time as he may designate for examination by the board.

Lieutenant-Colonel John S. Billings, Deputy Surgeon-General, having served over thirty years in the army, is on his own application and by direction of the President, retired from active service, this date, October 1, 1895.

First Lieutenant Frank T. Meriwether, Assistant Surgeon, having been found incapacitated by an Army Retiring Board on account of disability incident to the service, is by direction of the President retired from active service this date.

Captain Henry P. Birmingham, Assistant Surgeon, is granted leave of absence for one month, to take effect upon the arrival at Fort Trumbull, Conn., of Captain Geo. E. Bushnell, Assistant Surgeon. Captain Geo. E. Bushnell, Assistant Surgeon, will proceed to Fort Trumbull, Conn., and report for temporary duty during the absence on leave of Captain H. P. Birmingham, Assistant Surgeon.

Leave of absence for one month on surgeon's certificate of disability, with permission to leave the limits of the department, is granted First Lieutenant Isaac P. Ware, Assistant Surgeon.

Leave of absence for one month to take effect when his services can be spared, with permission to apply for an extension of one month, is granted Captain Eugene L. Swift, Assistant Surgeon, Fort Yates, N. D.

Major Washington Matthews, Surgeon, having been found incapacitated for active service by an Army Retiring Board, on account of disability incidental to the service, is by direction of the President, retired from active service this date, Sept. 26, 1895.

Leave of absence for four months to take effect about Nov. 5, 1895, is granted Captain Thomas U. Raymond, Assistant Surgeon.

PROMOTIONS.

Major William E. Waters, Surgeon, to be Deputy Surgeon-General with rank of Lieutenant-Colonel, Oct. 1, 1895, vice Billings, retired.

Captain Louis S. Tesson, Assistant Surgeon, to be Surgeon with the rank of Major, Sept. 26, 1895, vice Matthews, retired.

Captain Edwin F. Gardner, Assistant Surgeon, to be Surgeon with the rank of Major, Oct. 1, 1895, vice Waters, promoted.

Captain Louis W. Crampton, Assistant Surgeon, promoted to be Surgeon with the rank of Major, Sept. 6, 1895.